

SCORESHEET

REPORTER

Start from 1 and add/subtract

$$1 + \boxed{4} + \boxed{3} - \boxed{} = \boxed{8}$$

stage: 1

fight (round no.): 1

room: A

problem no.: 9

Juror's name: Slavik

reporter: Taipei

opponent: Bulgaria

reviewer: Slovakia

signature: [Signature]

REPORT

| | phenomenon explanation | theory/model | relevant experiments | comparison between theory and experiment | own contribution | task fulfilment |
|---|---|--|-------------------------------------|---|---|------------------------------|
| 0 | almost no | almost no | too few | no/ almost no | others' data, incorrectly cited | misunderstood |
| 1 | some | some | some | some | review of sources, cited | partly |
| 2 | fair | fair | fair | not well fitting | some own input | average |
| 3 | good | good | well performed, sufficient number | deviations qualitatively analysed | some interesting results | interesting solution |
| 4 | detailed | quite detailed, correct | + results explained | + theory limits explained, conclusive | considerable experimental or theoretical | some aspects above average |
| 5 | demonstrative | | errors analysed | well fitting, deviations analysed, conclusive | considerable experimental and theoretical | greater extent than expected |
| 6 | deep and comprehensible, shows physical insight | detailed, complex, completely testable | + reproducible, convincing analysis | | | |

DISCUSSION WITH OPPONENT

| | scientific contribution | relevant arguments/responses | efficiency |
|---|--------------------------------|--------------------------------------|-------------------------------------|
| 0 | almost no | too few | almost no, chaotic |
| 1 | only technical | some | avoided some questions |
| 2 | some scientific points cleared | many | cooperated well |
| 3 | interesting points discussed | + data/theory convincingly supported | answered directly to most questions |
| 4 | brought in new physics | proved deep understanding | efficient, productive |

ANSWERS TO JURY, OPPONENT and REVIEWER'S QUESTIONS

- 0 — concise and correct or no questions asked
- 1 — some incorrect, inconclusive or too long
- 2 — deeply incorrect or show deep misconceptions

NOTES:

OPPONENT

Start from 1 and add/subtract

$$1 + \boxed{1} + \boxed{2} + \boxed{2} - \boxed{} = \boxed{6}$$

QUESTIONS ASKED

- 0 — almost no, irrelevant
- 1 — some relevant, aimed at resolving some unclear points
- 2 — short allowing short answers, prioritized, all time used

OPPOSITION (SPEECH)

| | time used | understanding of presentation | relevant topics addressed | correct own opinions expressed | prioritisation |
|---|-------------------|-------------------------------|---------------------------|--------------------------------|----------------|
| 0 | almost no | almost nothing | no or irrelevant | almost no | no |
| 1 | very little | some main points | few | some | almost no |
| 2 | not all | main points | some | to important topics | some |
| 3 | almost all | all relevant points | many | to most topics | reasonable |
| 4 | all & efficiently | practically all points | practically all | + improvement suggestions | very good |

DISCUSSION WITH REPORTER

| | scientific contribution | relevance of topics | own opinions presented | efficiency | prioritisation |
|---|-------------------------|---------------------|---------------------------|------------------------|----------------|
| 0 | almost no | irrelevant | very little | almost no | no |
| 1 | little | some | some | to some extent | almost no |
| 2 | partial | average | some correct | leading or cooperative | some |
| 3 | good | many | many correct | quite efficient | reasonable |
| 4 | new crucial point(s) | almost all | + improvement suggestions | very efficient | very good |

ANSWERS TO JURY and REVIEWER'S QUESTIONS

- 0 — concise and correct or no questions asked
- 1 — some incorrect, inconclusive or too long
- 2 — deeply incorrect or show deep misconceptions

NOTES:

REVIEWER

Start from 1 and add/subtract

$$1 + \boxed{1} + \boxed{2} + \boxed{2} - \boxed{} = \boxed{6}$$

QUESTIONS ASKED

- 0 — too few, mostly irrelevant
- 1 — some relevant, sufficient number, could clear things out
- 2 — most time used, many unclear points resolved, aimed at both rep. and opp.
- 3 — +short, apt and clear, well prioritized time managed efficiently

REVIEW OF REPORT

| | report summary & understanding | discussion analysis | own opinions | pros & cons | prioritisation |
|---|--------------------------------|----------------------|---------------------------|--------------------|----------------|
| 0 | poor | almost no | too few | irrelevant | no |
| 1 | partial | too short/long | some | partially relevant | almost no |
| 2 | good | relevant parts | many | mostly adequate | some |
| 3 | detailed, complex | accurate, conclusive | + improvement suggestions | fully adequate | good |

REVIEW OF OPPOSITION

| | speech summary | discussion analysis | own opinions | pros & cons | prioritisation |
|---|--------------------|----------------------|---------------------------|--------------------|----------------|
| 0 | poor | almost no | too few | irrelevant | no |
| 1 | too short/long | too short/long | some | partially relevant | almost no |
| 2 | informative, apt | relevant parts | many | mostly adequate | some |
| 3 | brief but accurate | accurate, conclusive | + improvement suggestions | fully adequate | good |

ANSWERS TO JURY QUESTIONS

- 0 — concise and correct or no questions asked
- 1 — some incorrect, inconclusive or too long
- 2 — deeply incorrect or show deep misconceptions

NOTES:

No question to opponent

SCORESHEET

REPORTER

Start from 1 and add/subtract

$$1 + 4.5 + 1.5 - 1 = 6$$

stage: 1

fight (round no.): 1

room: A

problem no.: 9

Juror's name: G. Jennings

reporter: Chinese Taipei (Chun Ju)

opponent: Bulgaria (Rakhat)

reviewer: Slovakia (Katarina)

signature: [Signature]

REPORT

| | phenomenon explanation | theory/model | relevant experiments | comparison between theory and experiment | own contribution | task fulfilment |
|---|---|--|-------------------------------------|---|---|------------------------------|
| 0 | almost no | almost no | too few | no/ almost no | others' data, incorrectly cited | misunderstood |
| 1 | some | some | some | some | review of sources, cited | partly |
| 2 | fair | fair | fair | not well fitting | some own input | average |
| 3 | good | good | well performed, sufficient number | deviations qualitatively analysed | some interesting results | interesting solution |
| 4 | detailed | quite detailed, correct | + results explained | + theory limits explained, conclusive | considerable experimental or theoretical | some aspects above average |
| 5 | demonstrative | detailed, complex, completely testable | + reproducible, convincing analysis | well fitting, deviations analysed, conclusive | considerable experimental and theoretical | greater extent than expected |
| 6 | deep and comprehensible, shows physical insight | | | | | |

DISCUSSION WITH OPPONENT

| | scientific contribution | relevant arguments/responses | efficiency |
|---|------------------------------|--------------------------------------|-------------------------------------|
| 0 | almost no | too few | almost no, chaotic |
| 1 | only technical | some | avoided some questions |
| 2 | points cleared | many | cooperated well |
| 3 | interesting points discussed | + data/theory convincingly supported | answered directly to most questions |
| 4 | brought in new physics | proved deep understanding | efficient, productive |

ANSWERS TO JURY OPPONENT and REVIEWER'S QUESTIONS

- 0 — concise and correct or no questions asked
- 1 — some incorrect, inconclusive or too long
- 2 — deeply incorrect or show deep misconceptions

NOTES:

OPPONENT

Start from 1 and add/subtract

$$1 + 1.5 + 2 + 1.5 - 1 = 5$$

QUESTIONS ASKED

- 0 — almost no, irrelevant
- 1 — some relevant, aimed at resolving some unclear points
- 2 — short allowing short answers, prioritized, all time used

OPPOSITION (SPEECH)

| | time used | understanding of presentation | relevant topics addressed | correct own opinions expressed | prioritisation |
|---|-------------------|-------------------------------|---------------------------|--------------------------------|----------------|
| 0 | almost no | almost nothing | no or irrelevant | almost no | no |
| 1 | very little | some main points | few | some | almost no |
| 2 | not all | main points | some | to important topics | some |
| 3 | almost all | all relevant points | many | to most topics | reasonable |
| 4 | all & efficiently | practically all points | practically all | + improvement suggestions | very good |

DISCUSSION WITH REPORTER

| | scientific contribution | relevance of topics | own opinions presented | efficiency | prioritisation |
|---|-------------------------|---------------------|---------------------------|------------------------|----------------|
| 0 | almost no | irrelevant | very little | almost no | no |
| 1 | little | some | some | to some extent | almost no |
| 2 | partial | average | some correct | leading or cooperative | some |
| 3 | good | many | many correct | quite efficient | reasonable |
| 4 | new crucial point(s) | almost all | + improvement suggestions | very efficient | very good |

ANSWERS TO JURY and REVIEWER'S QUESTIONS

- 0 — concise and correct or no questions asked
- 1 — some incorrect, inconclusive or too long
- 2 — deeply incorrect or show deep misconceptions

NOTES:

REVIEWER

Start from 1 and add/subtract

$$1 + 1.5 + 1.5 + 1.5 - 0.5 = 5.5 \text{ six}$$

QUESTIONS ASKED

- 0 — too few, mostly irrelevant
- 1 — some relevant, sufficient number, could clear things out
- 2 — most time used, many unclear points resolved, aimed at both rep. and opp.
- 3 — +short, apt and clear, well prioritized time managed efficiently

REVIEW OF REPORT

| | report summary & understanding | discussion analysis | own opinions | pros & cons | prioritisation |
|---|--------------------------------|----------------------|---------------------------|--------------------|----------------|
| 0 | poor | almost no | too few | irrelevant | no |
| 1 | partial | too short/long | some | partially relevant | almost no |
| 2 | good | relevant parts | many | mostly adequate | some |
| 3 | detailed, complex | accurate, conclusive | + improvement suggestions | fully adequate | good |

REVIEW OF OPPOSITION

| | speech summary | discussion analysis | own opinions | pros & cons | prioritisation |
|---|--------------------|----------------------|---------------------------|--------------------|----------------|
| 0 | poor | almost no | too few | irrelevant | no |
| 1 | too short/long | too short/long | some | partially relevant | almost no |
| 2 | informative, apt | relevant parts | many | mostly adequate | some |
| 3 | brief but accurate | accurate, conclusive | + improvement suggestions | fully adequate | good |

ANSWERS TO JURY QUESTIONS

- 0 — concise and correct or no questions asked
- 1 — some incorrect, inconclusive or too long
- 2 — deeply incorrect or show deep misconceptions

NOTES:

SCORESHEET

REPORTER

Start from 1 and add/subtract
1 + 4 + 2 - 1 = 6

stage: 1

fight (round no.): 1

room: A

problem no.: 9

Juror's name: Gideon Chao

reporter: Chinese Taipei

opponent: Bulgaria

reviewer: Slovakia

signature: Chao

REPORT

| | phenomenon explanation | theory/model | relevant experiments | comparison between theory and experiment | own contribution | task fulfilment |
|---|---|--|-------------------------------------|---|---|------------------------------|
| 0 | almost no | almost no | too few | no/ almost no | others' data, incorrectly cited | misunderstood |
| 1 | some | some | some | some | review of sources, cited | partly |
| 2 | fair | fair | fair | not well fitting | some own input | average |
| 3 | good | good | well performed, sufficient number | deviations | some interesting results | interesting solution |
| 4 | detailed | quite detailed | + results explained | qualitatively analysed | considerable experimental or theoretical | some aspects above average |
| 5 | demonstrative | correct | errors analysed | + theory limits explained, conclusive | | greater extent than expected |
| 6 | deep and comprehensible, shows physical insight | detailed, complex, completely testable | + reproducible, convincing analysis | well fitting, deviations analysed, conclusive | considerable experimental and theoretical | |

DISCUSSION WITH OPPONENT

| | scientific contribution | relevant arguments/responses | efficiency |
|---|--------------------------------|------------------------------|-------------------------------------|
| 0 | almost no | too few | almost no, chaotic |
| 1 | only technical | some | avoided some questions |
| 2 | points cleared | many | cooperated well |
| 3 | some scientific points cleared | data/theory | answered directly to most questions |
| 4 | discussed | convincingly supported | efficient, productive |
| 5 | brought in new physics | proved deep understanding | |

ANSWERS TO JURY, OPPONENT and REVIEWER'S QUESTIONS

- 0 concise and correct or no questions asked
-1 some incorrect, inconclusive or too long
-2 deeply incorrect or show deep misconceptions

NOTES:

OPPONENT

Start from 1 and add/subtract
1 + 1 + 1 + 0 - 0 = 3

| QUESTIONS ASKED |
|--|
| 0 almost no, irrelevant |
| 1 some relevant, aimed at resolving some unclear points |
| 2 short allowing short answers, prioritized, all time used |

OPPOSITION (SPEECH)

| | time used | understanding of presentation | relevant topics addressed | correct own opinions expressed | prioritisation |
|---|-------------------|-------------------------------|---------------------------|--------------------------------|----------------|
| 0 | almost no | almost nothing | no or irrelevant | almost no | no |
| 1 | very little | some main points | few | some | almost no |
| 2 | not all | main points | some | to important topics | some |
| 3 | almost all | all relevant points | many | to most topics | reasonable |
| 4 | all & efficiently | practically all points | practically all | + improvement suggestions | very good |

DISCUSSION WITH REPORTER

| | scientific contribution | relevance of topics | own opinions presented | efficiency | prioritisation |
|---|-------------------------|---------------------|---------------------------|------------------------|----------------|
| 0 | almost no | irrelevant | very little | almost no | no |
| 1 | little | some | some | to some extent | almost no |
| 2 | partial | average | some correct | leading or cooperative | some |
| 3 | good | many | many correct | quite efficient | reasonable |
| 4 | new crucial point(s) | almost all | + improvement suggestions | very efficient | very good |

ANSWERS TO JURY and REVIEWER'S QUESTIONS

- 0 concise and correct or no questions asked
-1 some incorrect, inconclusive or too long
-2 deeply incorrect or show deep misconceptions

NOTES:

REVIEWER

Start from 1 and add/subtract
1 + 2 + 2 + 1 - 0 = 5

| QUESTIONS ASKED |
|---|
| 0 too few, mostly irrelevant |
| 1 some relevant, sufficient number, could clear things out |
| 2 most time used, many unclear points resolved, aimed at both rep. and opp. |
| 3 +short, apt and clear, well prioritized time managed efficiently |

REVIEW OF REPORT

| | report summary & understanding | discussion analysis | own opinions | pros & cons | prioritisation |
|---|--------------------------------|----------------------|---------------------------|--------------------|----------------|
| 0 | poor | almost no | too few | irrelevant | no |
| 1 | partial | too short/long | some | partially relevant | almost no |
| 2 | good | relevant parts | many | mostly adequate | some |
| 3 | detailed, complex | accurate, conclusive | + improvement suggestions | fully adequate | good |

REVIEW OF OPPOSITION

| | speech summary | discussion analysis | own opinions | pros & cons | prioritisation |
|---|--------------------|----------------------|---------------------------|--------------------|----------------|
| 0 | poor | almost no | too few | irrelevant | no |
| 1 | too short/long | too short/long | some | partially relevant | almost no |
| 2 | informative, apt | relevant parts | many | mostly adequate | some |
| 3 | brief but accurate | accurate, conclusive | + improvement suggestions | fully adequate | good |

ANSWERS TO JURY QUESTIONS

- 0 concise and correct or no questions asked
-1 some incorrect, inconclusive or too long
-2 deeply incorrect or show deep misconceptions

NOTES:

SCORESHEET

REPORTER

Start from 1 and add/subtract
1 + 2.5 + 2 - 0.8 = 5

stage: 1

fight (round no.): 1

room: A

problem no.: 9

Juror's name: Hong Jung
signature: Hong Jung

reporter:

opponent:

reviewer:

REPORT

| | phenomenon explanation | theory/model | relevant experiments | comparison between theory and experiment | own contribution | task fulfilment |
|---|---|--|-------------------------------------|---|---|------------------------------|
| 0 | almost no | almost no | too few | no/ almost no | others' data, incorrectly cited | misunderstood |
| 1 | some | some | some | some | review of sources, cited | partly |
| 2 | ✓ fair | ✓ fair | ✓ fair | not well fitting | some own input | average |
| 3 | good | good | well performed, sufficient number | ✓ deviations qualitatively analysed | some interesting results | interesting solution |
| 4 | detailed | quite detailed, correct | + results explained | + theory limits explained, conclusive | considerable experimental or theoretical | some aspects above average |
| 5 | demonstrative | detailed, complex, completely testable | + reproducible, convincing analysis | well fitting, deviations analysed, conclusive | considerable experimental and theoretical | greater extent than expected |
| 6 | deep and comprehensible, shows physical insight | | | | | |

DISCUSSION WITH OPPONENT

| | scientific contribution | relevant arguments/responses | efficiency |
|---|------------------------------|--------------------------------------|-------------------------------------|
| 0 | almost no | too few | almost no, chaotic |
| 1 | only technical | some | avoided some questions |
| 2 | ✓ some scientific | ✓ many | ✓ cooperated well |
| 3 | points cleared | + data/theory convincingly supported | answered directly to most questions |
| 4 | interesting points discussed | proved deep understanding | efficient, productive |
| 5 | brought in new physics | | |

ANSWERS TO JURY, OPPONENT and REVIEWER'S QUESTIONS

- 0 ✓ concise and correct or no questions asked
-1 some incorrect, inconclusive or too long
-2 deeply incorrect or show deep misconceptions

NOTES:

OPPONENT

Start from 1 and add/subtract
1 + 1 + 2.5 + 2 - 0 = 5.5 → 6

QUESTIONS ASKED

- 0 almost no, irrelevant
1 ✓ some relevant, aimed at resolving some unclear points
2 short allowing short answers, prioritized, all time used

OPPOSITION (SPEECH)

| | time used | understanding of presentation | relevant topics addressed | correct own opinions expressed | prioritisation |
|---|-------------------|-------------------------------|---------------------------|--------------------------------|----------------|
| 0 | almost no | almost nothing | no or irrelevant | almost no | no |
| 1 | very little | some main points | few | some | almost no |
| 2 | not all | main points | ✓ some | to important topics | ✓ some |
| 3 | almost all | ✓ all relevant points | many | to most topics | reasonable |
| 4 | all & efficiently | practically all points | practically all | + improvement suggestions | very good |

DISCUSSION WITH REPORTER

| | scientific contribution | relevance of topics | own opinions presented | efficiency | prioritisation |
|---|-------------------------|---------------------|---------------------------|------------------------|----------------|
| 0 | almost no | irrelevant | very little | almost no | no |
| 1 | little | some | some | to some extent | almost no |
| 2 | partial | average | some correct | leading or cooperative | ✓ some |
| 3 | good | many | many correct | quite efficient | reasonable |
| 4 | new crucial point(s) | almost all | + improvement suggestions | very efficient | very good |

ANSWERS TO JURY and REVIEWER'S QUESTIONS

- 0 ✓ concise and correct or no questions asked
-1 some incorrect, inconclusive or too long
-2 deeply incorrect or show deep misconceptions

NOTES:

REVIEWER

Start from 1 and add/subtract
1 + 1.5 + 2 + 2 - 0 = 5.5 → 6

QUESTIONS ASKED

- 0 too few, mostly irrelevant
1 some relevant, sufficient number, could clear things out
2 ✓ most time used, many unclear points resolved, aimed at both rep. and opp.
3 +short, apt and clear, well prioritized time managed efficiently

REVIEW OF REPORT

| | report summary & understanding | discussion analysis | own opinions | pros & cons | prioritisation |
|---|--------------------------------|----------------------|---------------------------|--------------------|----------------|
| 0 | poor | almost no | too few | irrelevant | no |
| 1 | partial | too short/long | some | partially relevant | almost no |
| 2 | ✓ good | relevant parts | many | mostly adequate | ✓ some |
| 3 | detailed, complex | accurate, conclusive | + improvement suggestions | fully adequate | good |

REVIEW OF OPPOSITION

| | speech summary | discussion analysis | own opinions | pros & cons | prioritisation |
|---|--------------------|----------------------|---------------------------|--------------------|----------------|
| 0 | poor | almost no | too few | irrelevant | no |
| 1 | too short/long | too short/long | some | partially relevant | almost no |
| 2 | informative, apt | relevant parts | many | mostly adequate | ✓ some |
| 3 | brief but accurate | accurate, conclusive | + improvement suggestions | fully adequate | good |

ANSWERS TO JURY QUESTIONS

- 0 ✓ concise and correct or no questions asked
-1 some incorrect, inconclusive or too long
-2 deeply incorrect or show deep misconceptions

NOTES:

REPORTER

Start from 1 and add/subtract

$$1 + 4.5 + 2.3 - 1 = 7$$

SCORESHEET

stage: 1

fight (round no.): 1

room: A

problem no.: 9

Juror's name: SCHNEIDER

reporter: CHINESE T. opponent: BULGARIA

reviewer: SLOVAKIA

signature: Schneider

REPORT

| | phenomenon explanation | theory/model | relevant experiments | comparison between theory and experiment | own contribution | task fulfilment |
|---|--|---|---|--|---|--|
| 0 | almost no | almost no | too few | no/ almost no | others' data, incorrectly cited | misunderstood |
| 1 | some | some | some | some | review of sources, cited | partly |
| 2 | fair | fair | fair | not well fitting | some own input | average |
| 3 | good | good | well performed, sufficient number | deviations | some interesting results | interesting solution |
| 4 | <input checked="" type="checkbox"/> detailed demonstrative | <input checked="" type="checkbox"/> quite detailed, correct | <input checked="" type="checkbox"/> results explained | <input checked="" type="checkbox"/> qualitatively analysed + theory limits | considerable experimental or theoretical | <input checked="" type="checkbox"/> some aspects above average |
| 5 | deep and comprehensible | detailed, complex, completely testable | errors analysed | explained, conclusive | considerable experimental and theoretical | greater extent than expected |
| 6 | shows physical insight | | + reproducible, convincing analysis | well fitting, deviations analysed, conclusive | | |

DISCUSSION WITH OPPONENT

| | scientific contribution | relevant arguments/responses | efficiency |
|---|--|--|---|
| 0 | almost no | too few | almost no, chaotic |
| 1 | only technical points cleared | some | avoided some questions |
| 2 | <input checked="" type="checkbox"/> points cleared | <input checked="" type="checkbox"/> many | <input checked="" type="checkbox"/> cooperated well |
| 3 | interesting points discussed | + data/theory convincingly supported | answered directly to most questions |
| 4 | brought in new physics | proved deep understanding | efficient, productive |

ANSWERS TO JURY, OPPONENT and REVIEWER'S QUESTIONS

- 0 ☐ concise and correct or no questions asked
- 1 ☒ some incorrect, inconclusive or too long
- 2 ☐ deeply incorrect or show deep misconceptions

NOTES:

Good exp. techniques (if some of rotational determination of friction type). Involves force to have seen a determination of the viscosity (only a fitting factor). Theory simple but includes very relevant. It is what dim. determines a force.

OPPONENT

Start from 1 and add/subtract

$$1 + 2.5 + 2.5 - 0 = 7$$

QUESTIONS ASKED

- 0 ☐ almost no, irrelevant
- 1 ☒ some relevant, aimed at resolving
- 2 ☐ some unclear points
- 3 ☐ short allowing short answers, prioritized, all time used

OPPOSITION (SPEECH)

| | time used | understanding of presentation | relevant topics addressed | correct own opinions expressed | prioritisation |
|---|-------------------|-------------------------------|---------------------------|--------------------------------|----------------|
| 0 | almost no | almost nothing | no or irrelevant | almost no | no |
| 1 | very little | some main points | few | some | almost no |
| 2 | not all | main points | some | to important topics | some |
| 3 | almost all | all relevant points | many | to most topics | reasonable |
| 4 | all & efficiently | practically all points | practically all | + improvement suggestions | very good |

DISCUSSION WITH REPORTER

| | scientific contribution | relevance of topics | own opinions presented | efficiency | prioritisation |
|---|---|---------------------|---------------------------|------------------------|----------------|
| 0 | almost no | irrelevant | very little | almost no | no |
| 1 | little | some | some | to some extent | almost no |
| 2 | <input checked="" type="checkbox"/> partial | average | some correct | leading or cooperative | some |
| 3 | good | many | many correct | quite efficient | reasonable |
| 4 | new crucial point(s) | almost all | + improvement suggestions | very efficient | very good |

ANSWERS TO JURY and REVIEWER'S QUESTIONS

- 0 ☒ concise and correct or no questions asked
- 1 ☐ some incorrect, inconclusive or too long
- 2 ☐ deeply incorrect or show deep misconceptions

NOTES:

Asks about procedures

Asks about physical dim? Asks about Ball diameter, but not too long without own opinion. Asks about Coriolis pressure

REVIEWER

Start from 1 and add/subtract

$$1 + 1.5 + 2.3 - 0 = 6$$

QUESTIONS ASKED

- 0 ☐ too few, mostly irrelevant
- 1 ☒ some relevant, sufficient number, could clear things out
- 2 ☐ most time used, many unclear points resolved, aimed at both rep. and opp.
- 3 ☐ +short, apt and clear, well prioritized time managed efficiently

REVIEW OF REPORT

| | report summary & understanding | discussion analysis | own opinions | pros & cons | prioritisation |
|---|--|----------------------|---------------------------|--------------------|----------------|
| 0 | poor | almost no | too few | irrelevant | no |
| 1 | partial | too short/long | some | partially relevant | almost no |
| 2 | <input checked="" type="checkbox"/> good | relevant parts | many | mostly adequate | some |
| 3 | detailed, complex | accurate, conclusive | + improvement suggestions | fully adequate | good |

REVIEW OF OPPOSITION

| | speech summary | discussion analysis | own opinions | pros & cons | prioritisation |
|---|--------------------|----------------------|---------------------------|--------------------|----------------|
| 0 | poor | almost no | too few | irrelevant | no |
| 1 | too short/long | too short/long | some | partially relevant | almost no |
| 2 | informative, apt | relevant parts | many | mostly adequate | some |
| 3 | brief but accurate | accurate, conclusive | + improvement suggestions | fully adequate | good |

ANSWERS TO JURY QUESTIONS

- 0 ☒ concise and correct or no questions asked
- 1 ☐ some incorrect, inconclusive or too long
- 2 ☐ deeply incorrect or show deep misconceptions

NOTES:

Asks about $\eta(\rho)$, ρ origin, solution. Little own opp. and thinks that Area A determines the relative contribution of friction

$m = \rho A d \omega + F + B v$, $F = b, B = \eta$

SCORESHEET

REPORTER

Start from 1 and add/subtract

$$1 + \boxed{3} + \boxed{3} - \boxed{1} = \boxed{6}$$

stage: 2

fight (round no.): 1

room: A

problem no.: 14

Juror's name: Slavik

reporter: Bulgene

opponent: Slovake

reviewer: Taipei

signature: [Signature]

REPORT

| | phenomenon explanation | theory/model | relevant experiments | comparison between theory and experiment | own contribution | task fulfilment |
|---|---|--|-------------------------------------|---|---|------------------------------|
| 0 | almost no | almost no | too few | no/ almost no | others' data, incorrectly cited | misunderstood |
| 1 | some | some | some | some | review of sources, cited | partly |
| 2 | fair | fair | fair | not well fitting | some own input | average |
| 3 | good | good | well performed, sufficient number | deviations qualitatively analysed | some interesting results | interesting solution |
| 4 | detailed | quite detailed, correct | + results explained | + theory limits explained, conclusive | considerable experimental or theoretical | some aspects above average |
| 5 | demonstrative | detailed, complex, completely testable | + reproducible, convincing analysis | well fitting, deviations analysed, conclusive | considerable experimental and theoretical | greater extent than expected |
| 6 | deep and comprehensible, shows physical insight | | | | | |

DISCUSSION WITH OPPONENT

| | scientific contribution | relevant arguments/responses | efficiency |
|---|--------------------------------|--------------------------------------|-------------------------------------|
| 0 | almost no | too few | almost no, chaotic |
| 1 | only technical points cleared | some | avoided some questions |
| 2 | some scientific points cleared | many | cooperated well |
| 3 | interesting points discussed | + data/theory convincingly supported | answered directly to most questions |
| 4 | brought in new physics | proved deep understanding | efficient, productive |

ANSWERS TO JURY, OPPONENT and REVIEWER'S QUESTIONS

- 0 — concise and correct or no questions asked
- 1 — some incorrect, inconclusive or too long
- 2 — deeply incorrect or show deep misconceptions

NOTES:

OPPONENT

Start from 1 and add/subtract

$$1 + \boxed{4} + \boxed{2} + \boxed{2} - \boxed{} = \boxed{8}$$

QUESTIONS ASKED

- 0 — almost no, irrelevant
- 1 — some relevant, aimed at resolving some unclear points
- 2 — short allowing short answers, prioritized, all time used

OPPOSITION (SPEECH)

| | time used | understanding of presentation | relevant topics addressed | correct own opinions expressed | prioritisation |
|---|-------------------|-------------------------------|---------------------------|--------------------------------|----------------|
| 0 | almost no | almost nothing | no or irrelevant | almost no | no |
| 1 | very little | some main points | few | some | almost no |
| 2 | not all | main points | some | to important topics | some |
| 3 | almost all | all relevant points | many | to most topics | reasonable |
| 4 | all & efficiently | practically all points | practically all | + improvement suggestions | very good |

DISCUSSION WITH REPORTER

| | scientific contribution | relevance of topics | own opinions presented | efficiency | prioritisation |
|---|-------------------------|---------------------|---------------------------|------------------------|----------------|
| 0 | almost no | irrelevant | very little | almost no | no |
| 1 | little | some | some | to some extent | almost no |
| 2 | partial | average | some correct | leading or cooperative | some |
| 3 | good | many | many correct | quite efficient | reasonable |
| 4 | new crucial point(s) | almost all | + improvement suggestions | very efficient | very good |

ANSWERS TO JURY and REVIEWER'S QUESTIONS

- 0 — concise and correct or no questions asked
- 1 — some incorrect, inconclusive or too long
- 2 — deeply incorrect or show deep misconceptions

NOTES:

REVIEWER

Start from 1 and add/subtract

$$1 + \boxed{2} + \boxed{2.5} + \boxed{2} - \boxed{} = \boxed{7}$$

QUESTIONS ASKED

- 0 — too few, mostly irrelevant
- 1 — some relevant, sufficient number, could clear things out
- 2 — most time used, many unclear points resolved, aimed at both rep. and opp.
- 3 — +short, apt and clear, well prioritized time managed efficiently

REVIEW OF REPORT

| | report summary & understanding | discussion analysis | own opinions | pros & cons | prioritisation |
|---|--------------------------------|----------------------|---------------------------|--------------------|----------------|
| 0 | poor | almost no | too few | irrelevant | no |
| 1 | partial | too short/long | some | partially relevant | almost no |
| 2 | good | relevant parts | many | mostly adequate | some |
| 3 | detailed, complex | accurate, conclusive | + improvement suggestions | fully adequate | good |

REVIEW OF OPPOSITION

| | speech summary | discussion analysis | own opinions | pros & cons | prioritisation |
|---|--------------------|----------------------|---------------------------|--------------------|----------------|
| 0 | poor | almost no | too few | irrelevant | no |
| 1 | too short/long | too short/long | some | partially relevant | almost no |
| 2 | informative, apt | relevant parts | many | mostly adequate | some |
| 3 | brief but accurate | accurate, conclusive | + improvement suggestions | fully adequate | good |

ANSWERS TO JURY QUESTIONS

- 0 — concise and correct or no questions asked
- 1 — some incorrect, inconclusive or too long
- 2 — deeply incorrect or show deep misconceptions

NOTES:

SCORESHEET

REPORTER

Start from 1 and add/subtract

$$1 + \boxed{2} + \boxed{2} - \boxed{1} = \boxed{4}$$

stage: 2

fight (round no.): 2

room: A

problem no.: 14

Juror's name: Gideon Chou

reporter: Bulgaria

opponent: Slavakia

reviewer: Chinese Taipei

signature: Chou

REPORT

| | phenomenon explanation | theory/model | relevant experiments | comparison between theory and experiment | own contribution | task fulfilment |
|---|---|--|-------------------------------------|---|---|------------------------------|
| 0 | almost no | almost no | too few | no/ almost no | others' data, incorrectly cited | misunderstood |
| 1 | some | some | some | some | review of sources, cited | partly |
| 2 | fair | fair | fair | not well fitting | some own input | average |
| 3 | good | good | well performed, sufficient number | deviations qualitatively analysed | some interesting results | interesting solution |
| 4 | detailed | quite detailed, correct | + results explained | + theory limits explained, conclusive | considerable experimental or theoretical | some aspects above average |
| 5 | demonstrative | detailed, complex, completely testable | + reproducible, convincing analysis | well fitting, deviations analysed, conclusive | considerable experimental and theoretical | greater extent than expected |
| 6 | deep and comprehensible, shows physical insight | | | | | |

DISCUSSION WITH OPPONENT

| | scientific contribution | relevant arguments/responses | efficiency |
|---|------------------------------|--------------------------------------|-------------------------------------|
| 0 | almost no | too few | almost no, chaotic |
| 1 | only technical | some | avoided some questions |
| 2 | points cleared | many | cooperated well |
| 3 | points cleared | + data/theory convincingly supported | answered directly to most questions |
| 4 | interesting points discussed | proved deep understanding | efficient, productive |
| 5 | brought in new physics | | |

ANSWERS TO JURY, OPPONENT and REVIEWER'S QUESTIONS

- 0 concise and correct or no questions asked
- 1 some incorrect, inconclusive or too long
- 2 deeply incorrect or show deep misconceptions

NOTES:

2^2 values? $14 \times 16 =$

$1/3 = 2.3$

OPPONENT

Start from 1 and add/subtract

$$1 + \boxed{1} + \boxed{2} + \boxed{2} - \boxed{0} = \boxed{6}$$

QUESTIONS ASKED

- 0 almost no, irrelevant
- 1 some relevant, aimed at resolving some unclear points
- 2 short allowing short answers, prioritized, all time used

OPPOSITION (SPEECH)

| | time used | understanding of presentation | relevant topics addressed | correct own opinions expressed | prioritisation |
|---|-------------------|-------------------------------|---------------------------|--------------------------------|----------------|
| 0 | almost no | almost nothing | no or irrelevant | almost no | no |
| 1 | very little | some main points | few | some | almost no |
| 2 | not all | main points | some | to important topics | some |
| 3 | almost all | all relevant points | many | to most topics | reasonable |
| 4 | all & efficiently | practically all points | practically all | + improvement suggestions | very good |

DISCUSSION WITH REPORTER

| | scientific contribution | relevance of topics | own opinions presented | efficiency | prioritisation |
|---|-------------------------|---------------------|---------------------------|------------------------|----------------|
| 0 | almost no | irrelevant | very little | almost no | no |
| 1 | little | some | some | to some extent | almost no |
| 2 | partial | average | some correct | leading or cooperative | some |
| 3 | good | many | many correct | quite efficient | reasonable |
| 4 | new crucial point(s) | almost all | + improvement suggestions | very efficient | very good |

ANSWERS TO JURY and REVIEWER'S QUESTIONS

- 0 concise and correct or no questions asked
- 1 some incorrect, inconclusive or too long
- 2 deeply incorrect or show deep misconceptions

NOTES:

REVIEWER

Start from 1 and add/subtract

$$1 + \boxed{2} + \boxed{2} + \boxed{2} - \boxed{0} = \boxed{7}$$

QUESTIONS ASKED

- 0 too few, mostly irrelevant
- 1 some relevant, sufficient number, could clear things out
- 2 most time used, many unclear points resolved, aimed at both rep. and opp.
- 3 +short, apt and clear, well prioritized time managed efficiently

REVIEW OF REPORT

| | report summary & understanding | discussion analysis | own opinions | pros & cons | prioritisation |
|---|--------------------------------|----------------------|---------------------------|--------------------|----------------|
| 0 | poor | almost no | too few | irrelevant | no |
| 1 | partial | too short/long | some | partially relevant | almost no |
| 2 | good | relevant parts | many | mostly adequate | some |
| 3 | detailed, complex | accurate, conclusive | + improvement suggestions | fully adequate | good |

REVIEW OF OPPOSITION

| | speech summary | discussion analysis | own opinions | pros & cons | prioritisation |
|---|--------------------|----------------------|---------------------------|--------------------|----------------|
| 0 | poor | almost no | too few | irrelevant | no |
| 1 | too short/long | too short/long | some | partially relevant | almost no |
| 2 | informative, apt | relevant parts | many | mostly adequate | some |
| 3 | brief but accurate | accurate, conclusive | + improvement suggestions | fully adequate | good |

ANSWERS TO JURY QUESTIONS

- 0 concise and correct or no questions asked
- 1 some incorrect, inconclusive or too long
- 2 deeply incorrect or show deep misconceptions

NOTES:

SCORESHEET

REPORTER

1 + 3 + 2 - 0.5 = 6
Start from 1 and add/subtract

stage: 2

fight (round no.): 1

room: A

problem no.: 14

Juror's name: SCHNEIDLITZ

reporter: BULGARIA

opponent: SLOVAKIA

reviewer: CHINESE TAIPEI

signature: Schneidlitz

REPORT

| | phenomenon explanation | theory/model | relevant experiments | comparison between theory and experiment | own contribution | task fulfilment |
|---|---|--|-------------------------------------|---|---|------------------------------|
| 0 | almost no | almost no | too few | no/ almost no | others' data, incorrectly cited | misunderstood |
| 1 | some | some | some | some | review of sources, cited | partly |
| 2 | fair | fair | fair | not well fitting | some own input | average |
| 3 | good | good | well performed, sufficient number | deviations | some interesting results | interesting solution |
| 4 | | | + results explained | qualitatively analysed | considerable experimental or theoretical | some aspects above average |
| 5 | detailed demonstrative | quite detailed, correct | errors analysed | + theory limits explained, conclusive | considerable experimental and theoretical | greater extent than expected |
| 6 | deep and comprehensible, shows physical insight | detailed, complex, completely testable | + reproducible, convincing analysis | well fitting, deviations analysed, conclusive | | |

DISCUSSION WITH OPPONENT

| | scientific contribution | relevant arguments/responses | efficiency |
|---|--------------------------------|--------------------------------------|-------------------------------------|
| 0 | almost no | too few | almost no, chaotic |
| 1 | only technical | some | avoided some questions |
| 2 | points cleared | many | cooperated well |
| 3 | some scientific points cleared | | |
| 4 | interesting points discussed | + data/theory convincingly supported | answered directly to most questions |
| 5 | brought in new physics | proved deep understanding | efficient, productive |

ANSWERS TO JURY, OPPONENT and REVIEWER'S QUESTIONS

- 0 ☒ concise and correct or no questions asked
-1 some incorrect, inconclusive or too long
-2 deeply incorrect or show deep misconceptions

NOTES:

Nearly no phenom. explanation. Good exp. experiment. Solves (E), but only for stable case. Varied τ_{sync} , $\tau_{\text{sync}}(I)$, $\lg(\tau) = f(\omega)$
No over analysis. ~~the~~ Could not explain the phenomenon very well or what are the relevant parameters.
① obvious rotational velocity, ② Measurement error

OPPONENT

1 + 1 + 2 + 1.5 - 0 = 6
Start from 1 and add/subtract

QUESTIONS ASKED

- 0 almost no, irrelevant
1 ☒ some relevant, aimed at resolving some unclear points
2 short allowing short answers, prioritized, all time used

OPPOSITION (SPEECH)

| | time used | understanding of presentation | relevant topics addressed | correct own opinions expressed | prioritisation |
|---|-------------------|-------------------------------|---------------------------|--------------------------------|----------------|
| 0 | almost no | almost nothing | no or irrelevant | almost no | no |
| 1 | very little | some main points | few | some | almost no |
| 2 | not all | main points | some | to important topics | some |
| 3 | almost all | all relevant points | many | to most topics | reasonable |
| 4 | all & efficiently | practically all points | practically all | + improvement suggestions | very good |

DISCUSSION WITH REPORTER

| | scientific contribution | relevance of topics | own opinions presented | efficiency | prioritisation |
|---|-------------------------|---------------------|---------------------------|------------------------|----------------|
| 0 | almost no | irrelevant | very little | almost no | no |
| 1 | little | some | some | to some extent | almost no |
| 2 | partial | average | some correct | leading or cooperative | some |
| 3 | good | many | many correct | quite efficient | reasonable |
| 4 | new crucial point(s) | almost all | + improvement suggestions | very efficient | very good |

ANSWERS TO JURY and REVIEWER'S QUESTIONS

- 0 concise and correct or no questions asked
-1 some incorrect, inconclusive or too long
-2 deeply incorrect or show deep misconceptions

NOTES:

① asks about origin of motion. Friction role; Non stable cases. ② Too few own opinion only asks question after question

REVIEWER

1 + 1 + 2 + 1.5 - 0 = 6
Start from 1 and add/subtract

QUESTIONS ASKED

- 0 too few, mostly irrelevant
1 ☒ some relevant, sufficient number, could clear things out
2 most time used, many unclear points resolved, aimed at both rep. and opp.
3 +short, apt and clear, well prioritized time managed efficiently

REVIEW OF REPORT

| | report summary & understanding | discussion analysis | own opinions | pros & cons | prioritisation |
|---|--------------------------------|----------------------|---------------------------|--------------------|----------------|
| 0 | poor | almost no | too few | irrelevant | no |
| 1 | partial | too short/long | some | partially relevant | almost no |
| 2 | good | relevant parts | many | mostly adequate | some |
| 3 | detailed, complex | accurate, conclusive | + improvement suggestions | fully adequate | good |

REVIEW OF OPPOSITION

| | speech summary | discussion analysis | own opinions | pros & cons | prioritisation |
|---|--------------------|----------------------|---------------------------|--------------------|----------------|
| 0 | poor | almost no | too few | irrelevant | no |
| 1 | too short/long | too short/long | some | partially relevant | almost no |
| 2 | informative, apt | relevant parts | many | mostly adequate | some |
| 3 | brief but accurate | accurate, conclusive | + improvement suggestions | fully adequate | good |

ANSWERS TO JURY QUESTIONS

- 0 ☒ concise and correct or no questions asked
-1 some incorrect, inconclusive or too long
-2 deeply incorrect or show deep misconceptions

NOTES: Questions on not very rel. topics (e.g. sn... frame rate). Exp. technique criticism ✓

SCORESHEET

REPORTER

Start from 1 and add/subtract

$$1 + 3 + 2 \cdot 0 - 0 \cdot 8 = 5$$

stage: 2

fight (round no.): 1

room: A

problem no.: 14

Juror's name: G. Jennings

reporter: Bulgaria (Ivan)

opponent: Slovakia (Martin)

reviewer: Chinese Taipei (Yu-Hsi)

signature: [Signature]

REPORT

| | phenomenon explanation | theory/model | relevant experiments | comparison between theory and experiment | own contribution | task fulfilment |
|---|---|--|-------------------------------------|--|---|------------------------------|
| 0 | almost no | almost no | too few | no/ almost no | others' data, incorrectly cited | misunderstood |
| 1 | some | some | some | some | review of sources, cited | partly |
| 2 | fair | fair | fair | not well fitting | some own input | average |
| 3 | good | good | well performed, sufficient number | deviations | some interesting results | interesting solution |
| 4 | detailed | quite detailed, correct | + results explained | qualitatively analysed | considerable experimental or theoretical | some aspects above average |
| 5 | demonstrative | detailed, complex, completely testable | errors analysed | + theory limits | considerable experimental and theoretical | greater extent than expected |
| 6 | deep and comprehensible, shows physical insight | | + reproducible, convincing analysis | explained, conclusive | | |

DISCUSSION WITH OPPONENT

| | scientific contribution | relevant arguments/responses | efficiency |
|---|--------------------------------|--------------------------------------|-------------------------------------|
| 0 | almost no | too few | almost no, chaotic |
| 1 | only technical | some | avoided some questions |
| 2 | points cleared | many | cooperated well |
| 3 | some scientific points cleared | + data/theory convincingly supported | answered directly to most questions |
| 4 | interesting points discussed | proved deep understanding | efficient, productive |
| 5 | brought in new physics | | |

ANSWERS TO JURY, OPPONENT and REVIEWER'S QUESTIONS

- 0 — concise and correct or no questions asked
- 1 — some incorrect, inconclusive or too long
- 2 — deeply incorrect or show deep misconceptions

NOTES:

OPPONENT

Start from 1 and add/subtract

$$1 + 1 + 2 + 2 - 0 = 6$$

QUESTIONS ASKED

- 0 — almost no, irrelevant
- 1 — some relevant, aimed at resolving some unclear points
- 2 — short allowing short answers, prioritized, all time used

OPPOSITION (SPEECH)

| | time used | understanding of presentation | relevant topics addressed | correct own opinions expressed | prioritisation |
|---|-------------------|-------------------------------|---------------------------|--------------------------------|----------------|
| 0 | almost no | almost nothing | no or irrelevant | almost no | no |
| 1 | very little | some main points | few | some | almost no |
| 2 | not all | main points | some | to important topics | some |
| 3 | almost all | all relevant points | many | to most topics | reasonable |
| 4 | all & efficiently | practically all points | practically all | + improvement suggestions | very good |

DISCUSSION WITH REPORTER

| | scientific contribution | relevance of topics | own opinions presented | efficiency | prioritisation |
|---|-------------------------|---------------------|---------------------------|------------------------|----------------|
| 0 | almost no | irrelevant | very little | almost no | no |
| 1 | little | some | some | to some extent | almost no |
| 2 | partial | average | some correct | leading or cooperative | some |
| 3 | good | many | many correct | quite efficient | reasonable |
| 4 | new crucial point(s) | almost all | + improvement suggestions | very efficient | very good |

ANSWERS TO JURY and REVIEWER'S QUESTIONS

- 0 — concise and correct or no questions asked
- 1 — some incorrect, inconclusive or too long
- 2 — deeply incorrect or show deep misconceptions

NOTES:

REVIEWER

Start from 1 and add/subtract

$$1 + 2 + 2 + 2 - 0 = 7$$

QUESTIONS ASKED

- 0 — too few, mostly irrelevant
- 1 — some relevant, sufficient number, could clear things out
- 2 — most time used, many unclear points resolved, aimed at both rep. and opp.
- 3 — +short, apt and clear, well prioritized time managed efficiently

REVIEW OF REPORT

| | report summary & understanding | discussion analysis | own opinions | pros & cons | prioritisation |
|---|--------------------------------|----------------------|---------------------------|--------------------|----------------|
| 0 | poor | almost no | too few | irrelevant | no |
| 1 | partial | too short/long | some | partially relevant | almost no |
| 2 | good | relevant parts | many | mostly adequate | some |
| 3 | detailed, complex | accurate, conclusive | + improvement suggestions | fully adequate | good |

REVIEW OF OPPOSITION

| | speech summary | discussion analysis | own opinions | pros & cons | prioritisation |
|---|--------------------|----------------------|---------------------------|--------------------|----------------|
| 0 | poor | almost no | too few | irrelevant | no |
| 1 | too short/long | too short/long | some | partially relevant | almost no |
| 2 | informative, apt | relevant parts | many | mostly adequate | some |
| 3 | brief but accurate | accurate, conclusive | + improvement suggestions | fully adequate | good |

ANSWERS TO JURY QUESTIONS

- 0 — concise and correct or no questions asked
- 1 — some incorrect, inconclusive or too long
- 2 — deeply incorrect or show deep misconceptions

NOTES:

SCORESHEET

REPORTER

Start from 1 and add/subtract
1 + 0 + 2 - 0 = 6

stage: 2

fight (round no.): 1

room: A

problem no.: 14

Juror's name: Along Jung

reporter:

opponent:

reviewer:

signature: Heeyoung

REPORT

| | phenomenon explanation | theory/model | relevant experiments | comparison between theory and experiment | own contribution | task fulfilment |
|---|---|--|-------------------------------------|---|---|------------------------------|
| 0 | almost no | almost no | too few | no/ almost no | others' data, incorrectly cited | misunderstood |
| 1 | some | some | some | some | review of sources, cited | partly |
| 2 | fair | fair | fair | not well fitting deviations | some own input | average |
| 3 | good | good | well performed, sufficient number | qualitatively analysed | some interesting results | interesting solution |
| 4 | detailed demonstrative | quite detailed, correct | + results explained errors analysed | + theory limits explained, conclusive | considerable experimental or theoretical | some aspects above average |
| 5 | deep and comprehensible, shows physical insight | detailed, complex, completely testable | + reproducible, convincing analysis | well fitting, deviations analysed, conclusive | considerable experimental and theoretical | greater extent than expected |

DISCUSSION WITH OPPONENT

| | scientific contribution | relevant arguments/responses | efficiency |
|---|--------------------------------|--------------------------------------|-------------------------------------|
| 0 | almost no | too few | almost no, chaotic |
| 1 | only technical points cleared | some | avoided some questions |
| 2 | some scientific points cleared | many | cooperated well |
| 3 | interesting points discussed | + data/theory convincingly supported | answered directly to most questions |
| 4 | brought in new physics | proved deep understanding | efficient, productive |

ANSWERS TO JURY, OPPONENT and REVIEWER'S QUESTIONS

- ✓ concise and correct or no questions asked
0
-1 some incorrect, inconclusive or too long
-2 deeply incorrect or show deep misconceptions

NOTES:

OPPONENT

Start from 1 and add/subtract
1 + 1.5 + 2.5 - 0 = 7

| QUESTIONS ASKED |
|--|
| 0 almost no, irrelevant |
| 1 some relevant, aimed at resolving |
| 2 some unclear points |
| 3 short allowing short answers, prioritized, all time used |

OPPOSITION (SPEECH)

| | time used | understanding of presentation | relevant topics addressed | correct own opinions expressed | prioritisation |
|---|-------------------|-------------------------------|---------------------------|--------------------------------|----------------|
| 0 | almost no | almost nothing | no or irrelevant | almost no | no |
| 1 | very little | some main points | few | some | almost no |
| 2 | not all | main points | some | to important topics | some |
| 3 | almost all | all relevant points | many | to most topics | reasonable |
| 4 | all & efficiently | practically all points | practically all | + improvement suggestions | very good |

DISCUSSION WITH REPORTER

| | scientific contribution | relevance of topics | own opinions presented | efficiency | prioritisation |
|---|-------------------------|---------------------|---------------------------|------------------------|----------------|
| 0 | almost no | irrelevant | very little | almost no | no |
| 1 | little | some | some | to some extent | almost no |
| 2 | partial | average | some correct | leading or cooperative | some |
| 3 | good | many | many correct | quite efficient | reasonable |
| 4 | new crucial point(s) | almost all | + improvement suggestions | very efficient | very good |

ANSWERS TO JURY and REVIEWER'S QUESTIONS

- ✓ concise and correct or no questions asked
0
-1 some incorrect, inconclusive or too long
-2 deeply incorrect or show deep misconceptions

NOTES:

REVIEWER

Start from 1 and add/subtract
1 + 1.5 + 2 + 2 - 0 = 6.5

| QUESTIONS ASKED |
|---|
| 0 too few, mostly irrelevant |
| 1 some relevant, sufficient number, could clear things out |
| 2 most time used, many unclear points resolved, aimed at both rep. and opp. |
| 3 +short, apt and clear, well prioritized time managed efficiently |

REVIEW OF REPORT

| | report summary & understanding | discussion analysis | own opinions | pros & cons | prioritisation |
|---|--------------------------------|----------------------|---------------------------|--------------------|----------------|
| 0 | poor | almost no | too few | irrelevant | no |
| 1 | partial | too short/long | some | partially relevant | almost no |
| 2 | good | relevant parts | many | mostly adequate | some |
| 3 | detailed, complex | accurate, conclusive | + improvement suggestions | fully adequate | good |

REVIEW OF OPPOSITION

| | speech summary | discussion analysis | own opinions | pros & cons | prioritisation |
|---|--------------------|----------------------|---------------------------|--------------------|----------------|
| 0 | poor | almost no | too few | irrelevant | no |
| 1 | too short/long | too short/long | some | partially relevant | almost no |
| 2 | informative, apt | relevant parts | many | mostly adequate | some |
| 3 | brief but accurate | accurate, conclusive | + improvement suggestions | fully adequate | good |

ANSWERS TO JURY QUESTIONS

- ✓ concise and correct or no questions asked
0
-1 some incorrect, inconclusive or too long
-2 deeply incorrect or show deep misconceptions

NOTES:

SCORESHEET

REPORTER

Start from 1 and add/subtract

$$1 + 5 + 3 - \square = 9$$

stage: 3

fight (round no.): 1

room: A

problem no.:

Juror's name: Slavik

reporter: Slovakia

opponent: Taipei

reviewer: Bulgaria

signature: [Signature]

REPORT

| | phenomenon explanation | theory/model | relevant experiments | comparison between theory and experiment | own contribution | task fulfilment |
|---|---|--|-------------------------------------|---|---|------------------------------|
| 0 | almost no | almost no | too few | no/ almost no | others' data, incorrectly cited | misunderstood |
| 1 | some | some | some | some | review of sources, cited | partly |
| 2 | fair | fair | fair | not well fitting | some own input | average |
| 3 | good | good | well performed, sufficient number | deviations qualitatively analysed | some interesting results | interesting solution |
| 4 | detailed | quite detailed, correct | + results explained | + theory limits explained, conclusive | considerable experimental or theoretical | some aspects above average |
| 5 | demonstrative | detailed, complex, completely testable | errors analysed | well fitting, deviations analysed, conclusive | considerable experimental and theoretical | greater extent than expected |
| 6 | deep and comprehensible, shows physical insight | | + reproducible, convincing analysis | | | |

DISCUSSION WITH OPPONENT

| | scientific contribution | relevant arguments/responses | efficiency |
|---|--------------------------------|--------------------------------------|-------------------------------------|
| 0 | almost no | too few | almost no, chaotic |
| 1 | only technical | some | avoided some questions |
| 2 | points cleared | many | cooperated well |
| 3 | some scientific points cleared | + data/theory convincingly supported | answered directly to most questions |
| 4 | interesting points discussed | proved deep understanding | efficient, productive |
| 5 | brought in new physics | | |

ANSWERS TO JURY, OPPONENT and REVIEWER'S QUESTIONS

- 0 — concise and correct or no questions asked
- 1 — some incorrect, inconclusive or too long
- 2 — deeply incorrect or show deep misconceptions

NOTES:

OPPONENT

Start from 1 and add/subtract

$$1 + 1 + 2.5 + 2.5 - \square = 7$$

QUESTIONS ASKED

- 0 — almost no, irrelevant
- 1 — some relevant, aimed at resolving some unclear points
- 2 — short allowing short answers, prioritized, all time used

OPPOSITION (SPEECH)

| | time used | understanding of presentation | relevant topics addressed | correct own opinions expressed | prioritisation |
|---|-------------------|-------------------------------|---------------------------|--------------------------------|----------------|
| 0 | almost no | almost nothing | no or irrelevant | almost no | no |
| 1 | very little | some main points | few | some | almost no |
| 2 | not all | main points | some | to important topics | some |
| 3 | almost all | all relevant points | many | to most topics | reasonable |
| 4 | all & efficiently | practically all points | practically all | + improvement suggestions | very good |

DISCUSSION WITH REPORTER

| | scientific contribution | relevance of topics | own opinions presented | efficiency | prioritisation |
|---|-------------------------|---------------------|---------------------------|------------------------|----------------|
| 0 | almost no | irrelevant | very little | almost no | no |
| 1 | little | some | some | to some extent | almost no |
| 2 | partial | average | some correct | leading or cooperative | some |
| 3 | good | many | many correct | quite efficient | reasonable |
| 4 | new crucial point(s) | almost all | + improvement suggestions | very efficient | very good |

ANSWERS TO JURY and REVIEWER'S QUESTIONS

- 0 — concise and correct or no questions asked
- 1 — some incorrect, inconclusive or too long
- 2 — deeply incorrect or show deep misconceptions

NOTES:

REVIEWER

Start from 1 and add/subtract

$$1 + 2 + 1.5 + 1 - \square = 5$$

QUESTIONS ASKED

- 0 — too few, mostly irrelevant
- 1 — some relevant, sufficient number, could clear things out
- 2 — most time used, many unclear points resolved, aimed at both rep. and opp.
- 3 — +short, apt and clear, well prioritized time managed efficiently

REVIEW OF REPORT

| | report summary & understanding | discussion analysis | own opinions | pros & cons | prioritisation |
|---|--------------------------------|----------------------|---------------------------|--------------------|----------------|
| 0 | poor | almost no | too few | irrelevant | no |
| 1 | partial | too short/long | some | partially relevant | almost no |
| 2 | good | relevant parts | many | mostly adequate | some |
| 3 | detailed, complex | accurate, conclusive | + improvement suggestions | fully adequate | good |

REVIEW OF OPPOSITION

| | speech summary | discussion analysis | own opinions | pros & cons | prioritisation |
|---|--------------------|----------------------|---------------------------|--------------------|----------------|
| 0 | poor | almost no | too few | irrelevant | no |
| 1 | too short/long | too short/long | some | partially relevant | almost no |
| 2 | informative, apt | relevant parts | many | mostly adequate | some |
| 3 | brief but accurate | accurate, conclusive | + improvement suggestions | fully adequate | good |

ANSWERS TO JURY QUESTIONS

- 0 — concise and correct or no questions asked
- 1 — some incorrect, inconclusive or too long
- 2 — deeply incorrect or show deep misconceptions

NOTES:

REPORTER

Start from 1 and add/subtract

1 + 4 + 2 - 0 = 7

SCORESHEET

stage: 3

reporter: Slovakia

fight (round no.): B 1

opponent: Chinese Taipei

room: A

reviewer: Bulgaria

problem no.: 2

Juror's name: Gideon Choo

signature: Ch8K-

REPORT

| | phenomenon explanation | theory/model | relevant experiments | comparison between theory and experiment | own contribution | task fulfilment |
|---|---|--|-------------------------------------|---|---|-----------------------------------|
| 0 | almost no | almost no | too few | no/ almost no | others' data, incorrectly cited | misunderstood |
| 1 | some | some | some | some | review of sources, cited | partly |
| 2 | fair | fair | fair | not well fitting | some own input | average |
| 3 | good | good | well performed, sufficient number | deviations qualitatively analysed | some interesting results | interesting solution |
| 4 | <u>detailed demonstrative</u> | <u>quite detailed, correct</u> | <u>+ results explained</u> | <u>+ theory limits explained, conclusive</u> | <u>considerable experimental or theoretical</u> | <u>some aspects above average</u> |
| 5 | deep and comprehensible, shows physical insight | detailed, complex, completely testable | + reproducible, convincing analysis | well fitting, deviations analysed, conclusive | considerable experimental and theoretical | greater extent than expected |
| 6 | | | | | | |

DISCUSSION WITH OPPONENT

| | scientific contribution | relevant arguments/responses | efficiency |
|---|---------------------------------------|--------------------------------------|-------------------------------------|
| 0 | almost no | too few | almost no, chaotic |
| 1 | only technical | some | avoided some questions |
| 2 | <u>some scientific points cleared</u> | <u>many</u> | <u>cooperated well</u> |
| 3 | interesting points discussed | + data/theory convincingly supported | answered directly to most questions |
| 4 | brought in new physics | proved deep understanding | efficient, productive |

ANSWERS TO JURY, OPPONENT and REVIEWER'S QUESTIONS

- 0 0 concise and correct or no questions asked
- 1 some incorrect, inconclusive or too long
- 2 deeply incorrect or show deep misconceptions

NOTES:

4.5/5

2

0

OPPONENT

Start from 1 and add/subtract

1 + 2 + 2 + 1 - 0 = 6

QUESTIONS ASKED

- 0 almost no, irrelevant
- 1 1 some relevant, aimed at resolving some unclear points
- 2 short allowing short answers, prioritized, all time used

OPPOSITION (SPEECH)

| | time used | understanding of presentation | relevant topics addressed | correct own opinions expressed | prioritisation |
|---|-------------------|-------------------------------|---------------------------|--------------------------------|----------------|
| 0 | almost no | almost nothing | no or irrelevant | almost no | no |
| 1 | very little | some main points | few | some | almost no |
| 2 | not all | main points | some | <u>to important topics</u> | <u>some</u> |
| 3 | <u>almost all</u> | all relevant points | <u>many</u> | to most topics | reasonable |
| 4 | all & efficiently | practically all points | practically all | + improvement suggestions | very good |

DISCUSSION WITH REPORTER

| | scientific contribution | relevance of topics | own opinions presented | efficiency | prioritisation |
|---|-------------------------|---------------------|---------------------------|------------------------|------------------|
| 0 | almost no | irrelevant | very little | almost no | no |
| 1 | <u>little</u> | <u>some</u> | <u>some</u> | <u>to some extent</u> | <u>almost no</u> |
| 2 | partial | average | some correct | leading or cooperative | <u>some</u> |
| 3 | good | many | many correct | quite efficient | reasonable |
| 4 | new crucial point(s) | almost all | + improvement suggestions | very efficient | very good |

ANSWERS TO JURY and REVIEWER'S QUESTIONS

- 0 0 concise and correct or no questions asked
- 1 some incorrect, inconclusive or too long
- 2 deeply incorrect or show deep misconceptions

NOTES:

2

2

1

0

REVIEWER

Start from 1 and add/subtract

1 + 2 + 2 + 4 - 0 = 6

QUESTIONS ASKED

- 0 too few, mostly irrelevant
- 1 some relevant, sufficient number, could clear things out
- 2 2 most time used, many unclear points resolved, aimed at both rep. and opp.
- 3 +short, apt and clear, well prioritized time managed efficiently

REVIEW OF REPORT

| | report summary & understanding | discussion analysis | own opinions | pros & cons | prioritisation |
|---|--------------------------------|-----------------------|---------------------------|------------------------|----------------|
| 0 | poor | almost no | too few | irrelevant | no |
| 1 | partial | too short/long | some | partially relevant | almost no |
| 2 | <u>good</u> | <u>relevant parts</u> | <u>many</u> | <u>mostly adequate</u> | <u>some</u> |
| 3 | detailed, complex | accurate, conclusive | + improvement suggestions | fully adequate | good |

REVIEW OF OPPOSITION

| | speech summary | discussion analysis | own opinions | pros & cons | prioritisation |
|---|-----------------------|-----------------------|---------------------------|---------------------------|------------------|
| 0 | poor | almost no | too few | irrelevant | no |
| 1 | <u>too short/long</u> | <u>too short/long</u> | <u>some</u> | <u>partially relevant</u> | <u>almost no</u> |
| 2 | informative, apt | relevant parts | many | mostly adequate | <u>some</u> |
| 3 | brief but accurate | accurate, conclusive | + improvement suggestions | fully adequate | good |

ANSWERS TO JURY QUESTIONS

- 0 0 concise and correct or no questions asked
- 1 some incorrect, inconclusive or too long
- 2 deeply incorrect or show deep misconceptions

NOTES:

2

2

1

SCORESHEET

REPORTER

Start from 1 and add/subtract
1 + 3.5 + 1.5 - 0.5 = 5.5 6

stage: 3

reporter: SLOVAKIA

fight (round no.): 1

opponent: CHINESE T.

room: A

reviewer: BULGARIA

problem no.: 2

Juror's name: SCHNEIDT

signature: Schmid M.

REPORT

| | phenomenon explanation | theory/model | relevant experiments | comparison between theory and experiment | own contribution | task fulfilment |
|---|---|--|-------------------------------------|---|--|------------------------------|
| 0 | almost no | almost no | too few | no/ almost no | others' data, incorrectly cited | misunderstood |
| 1 | some | X some | some | some | review of sources, cited | partly |
| 2 | fair | fair | fair | X not well fitting | some own input | average |
| 3 | good | good | well performed, sufficient number | deviations qualitatively analysed | some interesting results | interesting |
| 4 | | | + results explained | + theory limits | X considerable experimental or theoretical | X solution |
| 5 | detailed demonstrative | quite detailed, correct | errors analysed | explained, conclusive | | some aspects above average |
| 6 | X deep and comprehensible, shows physical insight | detailed, complex, completely testable | + reproducible, convincing analysis | well fitting, deviations analysed, conclusive | considerable experimental and theoretical | greater extent than expected |

DISCUSSION WITH OPPONENT

| | scientific contribution | relevant arguments/responses | efficiency |
|---|------------------------------|--------------------------------------|-------------------------------------|
| 0 | almost no | too few | almost no, chaotic |
| 1 | only technical | some | avoided some questions |
| 2 | X points cleared | X many | X cooperated well |
| 3 | interesting points discussed | + data/theory convincingly supported | answered directly to most questions |
| 4 | brought in new physics | proved deep understanding | efficient, productive |

ANSWERS TO JURY, OPPONENT and REVIEWER'S QUESTIONS

- 0 concise and correct or no questions asked
-1 X some incorrect, inconclusive or too long
-2 deeply incorrect or show deep misconceptions

NOTES: Conclusive phen. desc. big good qualitative explanation, but lack of quantitative explanation. lacking of answer of membrane. 16/10 harmonics → no response

OPPONENT

Start from 1 and add/subtract
1 + 1 + 2 + 2 - 0 = 6

| QUESTIONS ASKED |
|--|
| 0 almost no, irrelevant |
| 1 X some relevant, aimed at resolving some unclear points |
| 2 short allowing short answers, prioritized, all time used |

OPPOSITION (SPEECH)

| | time used | understanding of presentation | relevant topics addressed | correct own opinions expressed | prioritisation |
|---|-------------------|-------------------------------|---------------------------|--------------------------------|----------------|
| 0 | almost no | almost nothing | no or irrelevant | almost no | no |
| 1 | very little | some main points | few | X some | almost no |
| 2 | not all | X main points | some | to important topics | X some |
| 3 | X almost all | all relevant points | X many | to most topics | reasonable |
| 4 | all & efficiently | practically all points | practically all | + improvement suggestions | very good |

DISCUSSION WITH REPORTER

| | scientific contribution | relevance of topics | own opinions presented | efficiency | prioritisation |
|---|-------------------------|---------------------|---------------------------|------------------------|----------------|
| 0 | almost no | irrelevant | very little | almost no | no |
| 1 | little | some | X some | to some extent | almost no |
| 2 | partial | average | some correct | leading or cooperative | X some |
| 3 | X good | X many | many correct | X quite efficient | reasonable |
| 4 | new crucial point(s) | almost all | + improvement suggestions | very efficient | very good |

ANSWERS TO JURY and REVIEWER'S QUESTIONS

- 0 X concise and correct or no questions asked
-1 some incorrect, inconclusive or too long
-2 deeply incorrect or show deep misconceptions

NOTES: tension of membrane @ from rate @ + 2(p) rel. question but only little own opinion

REVIEWER

Start from 1 and add/subtract
1 + 0.5 + 1.5 + 0.5 - 0 = 3.5 4

| QUESTIONS ASKED |
|---|
| 0 too few, mostly irrelevant |
| X some relevant, sufficient number, could clear things out |
| 1 most time used, many unclear points resolved, aimed at both rep. and opp. |
| 2 +short, apt and clear, well prioritized time managed efficiently |

REVIEW OF REPORT

| | report summary & understanding | discussion analysis | own opinions | pros & cons | prioritisation |
|---|--------------------------------|----------------------|---------------------------|--------------------|----------------|
| 0 | poor | almost no | X too few | irrelevant | no |
| 1 | partial | too short/long | some | partially relevant | X almost no |
| 2 | X good | relevant parts | many | mostly adequate | some |
| 3 | detailed, complex | accurate, conclusive | + improvement suggestions | fully adequate | good |

REVIEW OF OPPOSITION

| | speech summary | discussion analysis | own opinions | pros & cons | prioritisation |
|---|--------------------|----------------------|---------------------------|--------------------|----------------|
| 0 | poor | almost no | X too few | irrelevant | no |
| 1 | X too short/long | too short/long | some | partially relevant | X almost no |
| 2 | informative, apt | relevant parts | many | mostly adequate | some |
| 3 | brief but accurate | accurate, conclusive | + improvement suggestions | fully adequate | good |

ANSWERS TO JURY QUESTIONS

- 0 X concise and correct or no questions asked
-1 some incorrect, inconclusive or too long
-2 deeply incorrect or show deep misconceptions

NOTES: No trial. questions asked (why neg. dB, which analysis programme), @ difference Too few time for PP

SCORESHEET

REPORTER

Start from 1 and add/subtract

$$1 + \boxed{2} + \boxed{2} - \boxed{0} = \boxed{5}$$

stage: 3

fight (round no.): 1

room: A

problem no.: 2

Juror's name: Hong Jung

reporter:

opponent:

reviewer:

signature: Hong Jung

REPORT

| | phenomenon explanation | theory/model | relevant experiments | comparison between theory and experiment | own contribution | task fulfilment |
|---|---|--|-------------------------------------|---|---|------------------------------|
| 0 | almost no | almost no | too few | no/ almost no | others' data, incorrectly cited | misunderstood |
| 1 | some | some | some | some | review of sources, cited | partly |
| 2 | <u>✓</u> fair | <u>✓</u> fair | <u>✓</u> fair | not well fitting | some own input | average |
| 3 | good | good | well performed, sufficient number | deviations qualitatively analysed | some interesting results | interesting solution |
| 4 | detailed | quite detailed, correct | + results explained | + theory limits explained, conclusive | considerable experimental or theoretical | some aspects above average |
| 5 | demonstrative | detailed, complex, completely testable | + reproducible, convincing analysis | well fitting, deviations analysed, conclusive | considerable experimental and theoretical | greater extent than expected |
| 6 | deep and comprehensible, shows physical insight | | | | | |

DISCUSSION WITH OPPONENT

| | scientific contribution | relevant arguments/responses | efficiency |
|---|------------------------------|--------------------------------------|-------------------------------------|
| 0 | almost no | too few | almost no, chaotic |
| 1 | only technical | some | avoided some questions |
| 2 | points cleared | <u>✓</u> many | cooperated well |
| 3 | some scientific | | |
| 4 | points cleared | + data/theory convincingly supported | answered directly to most questions |
| 5 | interesting points discussed | proved deep understanding | efficient, productive |
| 6 | brought in new physics | | |

ANSWERS TO JURY, OPPONENT and REVIEWER'S QUESTIONS

- 0 ✓ concise and correct or no questions asked
- 1 some incorrect, inconclusive or too long
- 2 deeply incorrect or show deep misconceptions

NOTES:

OPPONENT

Start from 1 and add/subtract

$$1 + \boxed{1} + \boxed{2} + \boxed{2} - \boxed{0} = \boxed{6}$$

QUESTIONS ASKED

- 0 almost no, irrelevant
- 1 ✓ some relevant, aimed at resolving some unclear points
- 2 short allowing short answers, prioritized, all time used

OPPOSITION (SPEECH)

| | time used | understanding of presentation | relevant topics addressed | correct own opinions expressed | prioritisation |
|---|-------------------|-------------------------------|---------------------------|--------------------------------|----------------|
| 0 | almost no | almost nothing | no or irrelevant | almost no | no |
| 1 | very little | some main points | few | some | almost no |
| 2 | not all | main points | <u>✓</u> some | to important topics | some |
| 3 | almost all | all relevant points | many | to most topics | reasonable |
| 4 | all & efficiently | practically all points | practically all | + improvement suggestions | very good |

DISCUSSION WITH REPORTER

| | scientific contribution | relevance of topics | own opinions presented | efficiency | prioritisation |
|---|-------------------------|---------------------|---------------------------|------------------------|----------------|
| 0 | almost no | irrelevant | very little | almost no | no |
| 1 | little | some | some | to some extent | almost no |
| 2 | partial | average | some correct | leading or cooperative | some |
| 3 | good | many | many correct | quite efficient | reasonable |
| 4 | new crucial point(s) | almost all | + improvement suggestions | very efficient | very good |

ANSWERS TO JURY and REVIEWER'S QUESTIONS

- 0 ✓ concise and correct or no questions asked
- 1 some incorrect, inconclusive or too long
- 2 deeply incorrect or show deep misconceptions

NOTES:

REVIEWER

Start from 1 and add/subtract

$$1 + \boxed{2} + \boxed{2} + \boxed{1} - \boxed{0} = \boxed{6}$$

QUESTIONS ASKED

- 0 too few, mostly irrelevant
- 1 some relevant, sufficient number, could clear things out
- 2 ✓ most time used, many unclear points resolved, aimed at both rep. and opp.
- 3 +short, apt and clear, well prioritized time managed efficiently

REVIEW OF REPORT

| | report summary & understanding | discussion analysis | own opinions | pros & cons | prioritisation |
|---|--------------------------------|----------------------|---------------------------|--------------------|----------------|
| 0 | poor | almost no | too few | irrelevant | no |
| 1 | partial | too short/long | some | partially relevant | almost no |
| 2 | <u>✓</u> good | relevant parts | many | mostly adequate | some |
| 3 | detailed, complex | accurate, conclusive | + improvement suggestions | fully adequate | good |

REVIEW OF OPPOSITION

| | speech summary | discussion analysis | own opinions | pros & cons | prioritisation |
|---|--------------------|----------------------|---------------------------|--------------------|----------------|
| 0 | poor | almost no | too few | irrelevant | no |
| 1 | too short/long | too short/long | some | partially relevant | almost no |
| 2 | informative, apt | relevant parts | many | mostly adequate | some |
| 3 | brief but accurate | accurate, conclusive | + improvement suggestions | fully adequate | good |

ANSWERS TO JURY QUESTIONS

- 0 ✓ concise and correct or no questions asked
- 1 some incorrect, inconclusive or too long
- 2 deeply incorrect or show deep misconceptions

NOTES:

SCORESHEET

REPORTER

Start from 1 and add/subtract

$$1 + 3 + 2 - 0 = 6$$

stage: 3

reporter: Slovakia (Michaela)

fight (round no.): 1

opponent: Chinese Taipei (An-Jung)

room: A

problem no.: 2

reviewer: Bulgaria (Dimitar)

Juror's name: G. Jennings

signature: [Signature]

REPORT

| | phenomenon explanation | theory/model | relevant experiments | comparison between theory and experiment | own contribution | task fulfilment |
|---|---|--|-------------------------------------|---|---|------------------------------|
| 0 | almost no | almost no | too few | no/ almost no | others' data, incorrectly cited | misunderstood |
| 1 | some | some | some | some | review of sources, cited | partly |
| 2 | fair | fair | fair | not well fitting | some own input | average |
| 3 | good | good | well performed, sufficient number | deviations qualitatively analysed | some interesting results | interesting solution |
| 4 | detailed demonstrative | quite detailed, correct | + results explained errors analysed | + theory limits explained, conclusive | considerable experimental or theoretical | some aspects above average |
| 5 | deep and comprehensible, shows physical insight | detailed, complex, completely testable | + reproducible, convincing analysis | well fitting, deviations analysed, conclusive | considerable experimental and theoretical | greater extent than expected |

DISCUSSION WITH OPPONENT

| | scientific contribution | relevant arguments/responses | efficiency |
|---|--------------------------------|--------------------------------------|-------------------------------------|
| 0 | almost no | too few | almost no, chaotic |
| 1 | only technical | some | avoided some questions |
| 2 | some scientific points cleared | many | cooperated well |
| 3 | interesting points discussed | + data/theory convincingly supported | answered directly to most questions |
| 4 | brought in new physics | proved deep understanding | efficient, productive |

ANSWERS TO JURY, OPPONENT and REVIEWER'S QUESTIONS

- 0 — concise and correct or no questions asked
- 1 — some incorrect, inconclusive or too long
- 2 — deeply incorrect or show deep misconceptions

NOTES:

OPPONENT

Start from 1 and add/subtract

$$1 + 1.5 + 2.5 + 2 - 0 = 7$$

| QUESTIONS ASKED |
|--|
| 0 — almost no, irrelevant |
| 1 — some relevant, aimed at resolving some unclear points |
| 2 — short allowing short answers, prioritized, all time used |

OPPOSITION (SPEECH)

| | time used | understanding of presentation | relevant topics addressed | correct own opinions expressed | prioritisation |
|---|-------------------|-------------------------------|---------------------------|--------------------------------|----------------|
| 0 | almost no | almost nothing | no or irrelevant | almost no | no |
| 1 | very little | some main points | few | some | almost no |
| 2 | not all | main points | some | to important topics | some |
| 3 | almost all | all relevant points | many | to most topics | reasonable |
| 4 | all & efficiently | practically all points | practically all | + improvement suggestions | very good |

DISCUSSION WITH REPORTER

| | scientific contribution | relevance of topics | own opinions presented | efficiency | prioritisation |
|---|-------------------------|---------------------|---------------------------|------------------------|----------------|
| 0 | almost no | irrelevant | very little | almost no | no |
| 1 | little | some | some | to some extent | almost no |
| 2 | partial | average | some correct | leading or cooperative | some |
| 3 | good | many | many correct | quite efficient | reasonable |
| 4 | new crucial point(s) | almost all | + improvement suggestions | very efficient | very good |

ANSWERS TO JURY and REVIEWER'S QUESTIONS

- 0 — concise and correct or no questions asked
- 1 — some incorrect, inconclusive or too long
- 2 — deeply incorrect or show deep misconceptions

NOTES:

REVIEWER

Start from 1 and add/subtract

$$1 + 2 + 1.8 + 0.2 - 0 = 5$$

| QUESTIONS ASKED |
|---|
| 0 — too few, mostly irrelevant |
| 1 — some relevant, sufficient number, could clear things out |
| 2 — most time used, many unclear points resolved, aimed at both rep. and opp. |
| 3 — +short, apt and clear, well prioritized time managed efficiently |

REVIEW OF REPORT

| | report summary & understanding | discussion analysis | own opinions | pros & cons | prioritisation |
|---|--------------------------------|----------------------|---------------------------|--------------------|----------------|
| 0 | poor | almost no | too few | irrelevant | no |
| 1 | partial | too short/long | some | partially relevant | almost no |
| 2 | good | relevant parts | many | mostly adequate | some |
| 3 | detailed, complex | accurate, conclusive | + improvement suggestions | fully adequate | good |

REVIEW OF OPPOSITION

| | speech summary | discussion analysis | own opinions | pros & cons | prioritisation |
|---|--------------------|----------------------|---------------------------|--------------------|----------------|
| 0 | poor | almost no | too few | irrelevant | no |
| 1 | too short/long | too short/long | some | partially relevant | almost no |
| 2 | informative, apt | relevant parts | many | mostly adequate | some |
| 3 | brief but accurate | accurate, conclusive | + improvement suggestions | fully adequate | good |

ANSWERS TO JURY QUESTIONS

- 0 — concise and correct or no questions asked
- 1 — some incorrect, inconclusive or too long
- 2 — deeply incorrect or show deep misconceptions

NOTES:

| Team | Stage 1 | | | Stage 2 | | | Stage 3 | | | Stage 4 | | |
|--------------------|---------------------------------|--------------------------------|---------------------------------|----------------------------|----------------------------|---------------------------------|------------------------------------|-----------------------------------|-----------------------------|---------|-----|-----|
| | Rep | Opp | Rev | Rep | Opp | Rev | Rep | Opp | Rev | Rep | Opp | Rev |
| Juror | | | | | | | | | | | | |
| Gravin Jennings | 6 | 5 | 6 | 5 | 6 | 7 | 6 | 7 | 5 | | | |
| Gideon Onoo | 6 | 3 | 5 | 4 | 6 | 7 | 7 | 6 | 6 | | | |
| Hong Jung | 5 | 6 | 6 | 6 | 7 | 7 | 5 | 6 | 6 | | | |
| Martin Smedlitz | 7 | 7 | 6 | 6 | 6 | 6 | 6 | 6 | 4 | | | |
| Jan Slarik | 8 | 6 | 6 | 6 | 8 | 7 | 9 | 7 | 5 | | | |
| Acting Team Member | | | | | | | | | | | | |
| | Chun-Ju Lin (Chinese Taipei) | Rakhat Turganbek (Bulgaria) | Katarina Šamulová (Slovakia) | Ivan Dimitov (Bulgaria) | Martin Marek (Slovakia) | Yu-Hsi Wang (Chinese Taipei) | Michaela Jurkovičová (Slovakia) | An-Jung Huang (Chinese Taipei) | Dimitar Tomov (Bulgaria) | | | |
| | | | | | | | | | | | | |
| Rejected Problems | | - | | | - | | | | - | | | |
| Accepted Problem | Q9. Ball in a Tube | | | Q14. Gee-Hwa Whammy Poodle | | | Q2. Ballon Airhorn | | | | | |

Signature Fight Assistant: *James Lim Jie Sin* Double-checked with Scoring Guidelines by second Fight Assistant (signature): *[Signature]*