

# Online Physics Olympiad - 2021

## RULES AND REGULATIONS

OPhO is a team-based competition (3 members at most per team) held during the summer consisting of both: an open round held for 3 days; and, an invitational round held for 3 days.

**Open Round.** The open contest will be held from June 4, 12 am (GMT) to June 7, 12 am (GMT). The test will consist of 35 problems. Teams will have to submit numerical answers on the OPhO portal <https://opho.physoly.tech/> when emailed their team login (after registering). The top 15% of the pool in the open round will be invited to participate in the invitational round.

**Invitational Contest.** The invitational round consists of both a theory and experimental portion. Participants are given 2 full days to complete the theoretical portion starting from July 31, 12 am (GMT). They are given 1 full day to complete the experimental portion starting at August 2, 12 am (GMT).

**Eligibility.** To be eligible for potential awards for the 2021 OPhO, the entire team must consist of members that: (1) must not have started university studies; (2) are under the age of 20 during the contest. Undergraduate students are welcome to participate, but they will not be able to get any awards and will be put in a separate division.

**Registration.** To register, please sign the google form listed [here](#). If, for any reason, a team is not able to access the google forms, please send an email to [online.opho@gmail.com](mailto:online.opho@gmail.com) including a team name and indicating (for each team-member): full name, grade, email address, and country.

**Scoring.** The base score for each problem is dependent on the difficulty which in turn is decided by the number of people who successfully answered it. Each incorrect attempt will decrease the base score and there will be no time factor. The scoring for an individual problem follows:

$$w(n, N) = (0.9)^i [\exp(n/35) + \max(5.5 - \lfloor \ln N \rfloor, 2)],$$

where  $i \in \{0, 1, 2\}$  (represents whether a team got it on the first try, second try, or third try). Additionally,  $N$  represents the number of teams that got the question right, and  $n$  represents the question number (in this regard, expect all questions to be ordered by difficulty). The cumulative score of a submission will be determined by the sum of these values.

**Submitting Invitational Solutions.** Scores for invitational problems are predetermined and solutions will be reviewed to determine the proper number of points to give. Participants of the invitational round will be given a google form where they are allowed to submit up-to 1 gigabyte of data for their solutions. It is recommended that participants write their solutions in  $\text{\LaTeX}$ . However, handwritten solutions (or a combination of both) are accepted too. If participants have more than one photo of a handwritten solution (jpg, png, etc), it is required to organize them in the correct order in a pdf before submitting.

**Awards and Results.** The top competitors in both the invitational (participants will be given a certificate) and open contest will be given awards. Accordingly, their names will be published on the website.

