Physics Brawl Online 2025: Managing Fair Play at Scale

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Abstract

In 2025, Physics Brawl Online attracted 1,228 registered teams from 74 countries, demonstrating the power of accessible, remote competitions. However, rule violations, often connected to unauthorised artificial intelligence usage, led to the disqualification of approximately 175 teams. The problem of participant misconduct has persisted for years, with both cheating methods and detection capabilities evolving annually. This year introduced post-competition interviews for selected teams as an additional verification measure.

Physics Brawl Online 2025

Physics Brawl Online is arguably the largest online team physics competition globally. On 26 November 2025, 1,228 teams from 74 countries participated in this challenging activity. This unprecedented reach demonstrates that when barriers to entry are removed—through free participation, remote access, and inclusive age categories—the international physics community responds with remarkable enthusiasm.

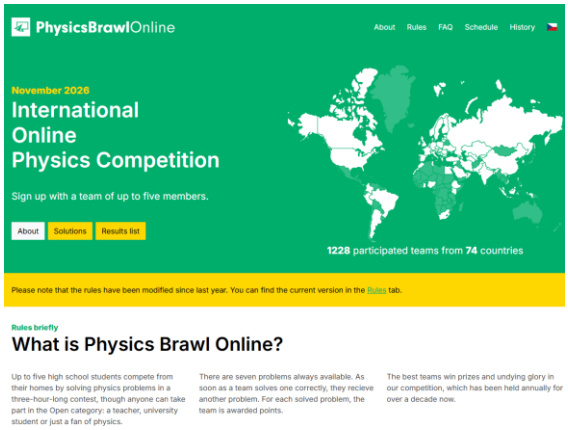

Figure 1: Physics Brawl Online website

Disqualification Rate and Trends

Yet success at scale inevitably brings challenges. The disqualification of approximately 175 teams[1] for rule violations exposed the persistent difficulty of maintaining fair play in online environments. This represents the highest disqualification rate to date, compared with 116 cases in 2024—a concerning upward trend. This escalation constitutes the primary concern for

[1] *At the time of writing, the disqualification figure remained provisional, subject to appeals to the competition's central committee.*

the competition's organisers: maintaining fair play whilst developing effective detection methods for identifying misconduct.

Figure 2: Logotype of the competition

Cases of Misconduct

Whilst organisers cannot disclose precise detection methodologies—doing so would rapidly diminish their effectiveness—several patterns of misconduct warrant discussion.

Traditional violations include inter-team communication, which remains prohibited. More sophisticated approaches involve teams registering secondary accounts to test solutions; if correct, they submit identical answers to their primary team account to secure higher marks for first-time correct submissions. This circumvents the competition's scoring mechanism.

Another concern involves registration of individuals previously banned from competition, which remains one of the limited effective penalties available to organisers.

The most pressing recent development concerns unauthorised artificial intelligence usage. Generative AI models have become increasingly capable of solving upper secondary-level physics problems, and free versions are readily accessible. Particularly egregious cases have included teams photographing problem statements, uploading them to AI tools designed for homework assistance, and submitting solutions generated thereby—a violation compounded by the fact that such tools retain and publish all problems and solutions provided to them.

Verification Procedures

Introduced this year, brief verification interviews conducted via Google Meet provide a secondary detection layer. Three-member verification panels engage with entire competing teams for a maximum of ten minutes during the 90-minute window following competition conclusion. Whilst these interviews occasionally provided decisive evidence, organisers have approached such assessments with appropriate sensitivity, recognising that borderline cases require nuanced judgement.

Lessons Learnt and Future Directions

Organisers will continue refining competition procedures based on 2025 experience. All changes to rules and procedures will be communicated transparently via the official website. The global physics education community is invited to participate in this ongoing conversation, collectively shaping competitions that balance accessibility, integrity, and excellence.

Invitation for Fyziklání 2026: In-Person Excellence in Prague

For those who excelled in Physics Brawl Online, a natural progression awaits. Fyziklání 2026 invites teams to Prague for Europe's largest in-person physics team competition, held on 13 February 2026.

The three-hour contest employs the same dynamic problem-solving format: seven problems continuously available, with new challenges appearing upon successful submission. Problem difficulty ranges ensure accessibility whilst presenting genuine challenges to experienced competitors. Participants join a 20-year tradition of excellence, competing for prizes, prestige, and international friendships forged through physics.

Beyond the competition, Fyziklání offers an accompanying programme featuring lectures and excursions, with opportunity to extend stays and experience Prague fully.

Registration is now open and remains active until 6 February 2026. Early registration is strongly encouraged, particularly for international teams, as accommodation booking and visa arrangements require adequate planning time. Organisers are available to assist with logistical enquiries, and comprehensive information regarding accommodation, travel, and visa support is available at https://fyziklani.org.

Figure 3: Photo of organisers of Fyziklani 2025