



Swiss Young Physicists' Tournament

International Young Physicists' Tournament

SYPT

- Similar to SYNT but focused on **physics**
- Open to all students in Swiss **high schools**
- Teams of **three**
- 17 open problems published in July (www.iypt.org)
- SYPT 2023 in March
 - Attractive program and prizes
 - All costs **covered**
- Preselection for the Swiss **IYPT** team



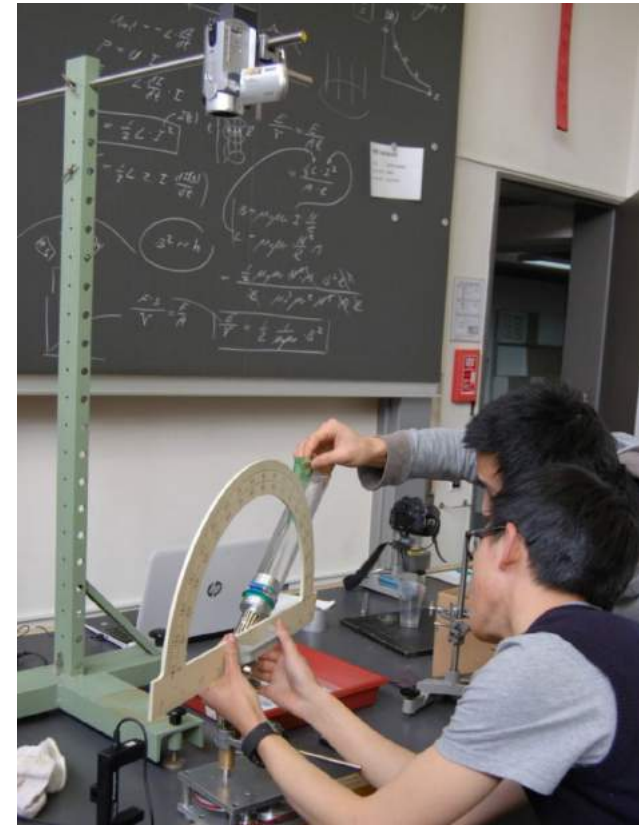
IYPT

- **International** analogue of SYPT
- Takes place every year in **July**
- ~ **30 countries** participating
- Each country represented by a team of **five** students
- Switzerland has **medalled** every year since 2012, and **won** IYPT 2022 in Timisoara (Romania)!

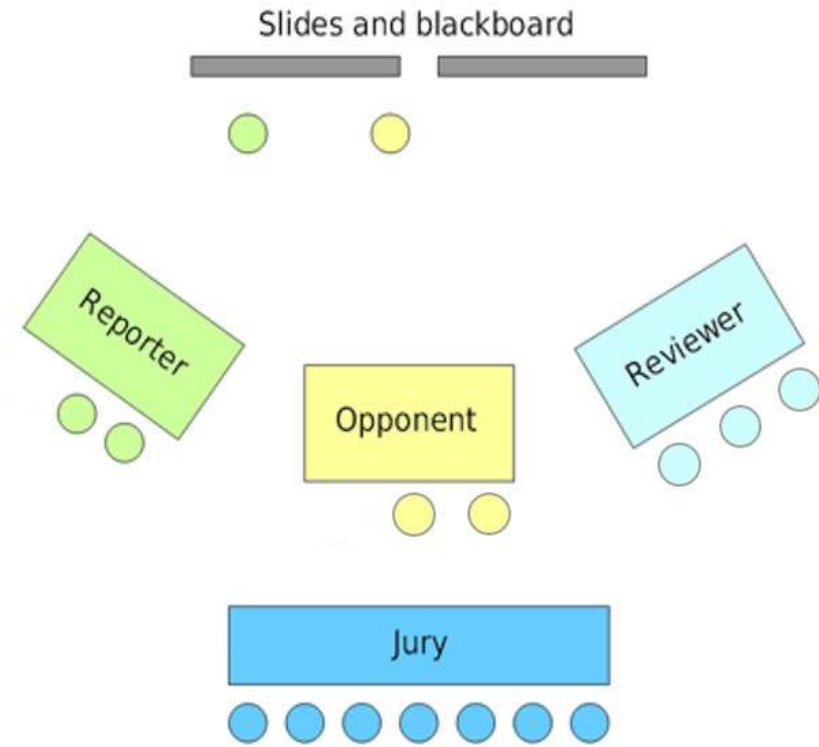
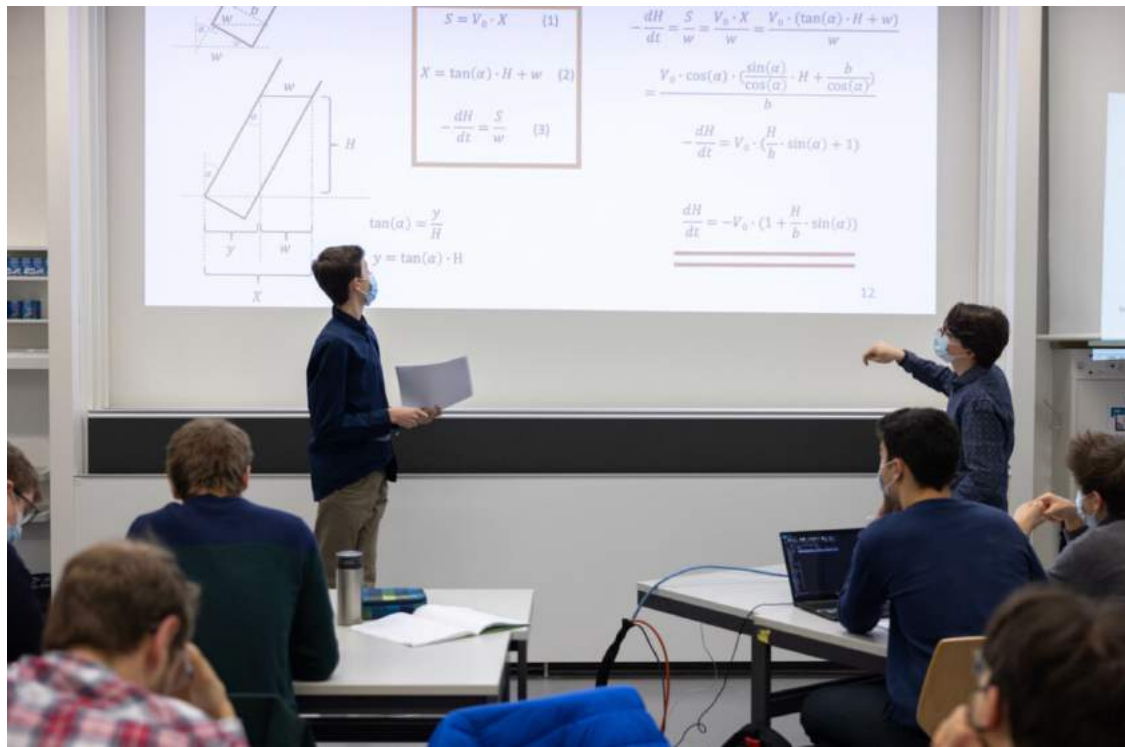


Competition mode: own research

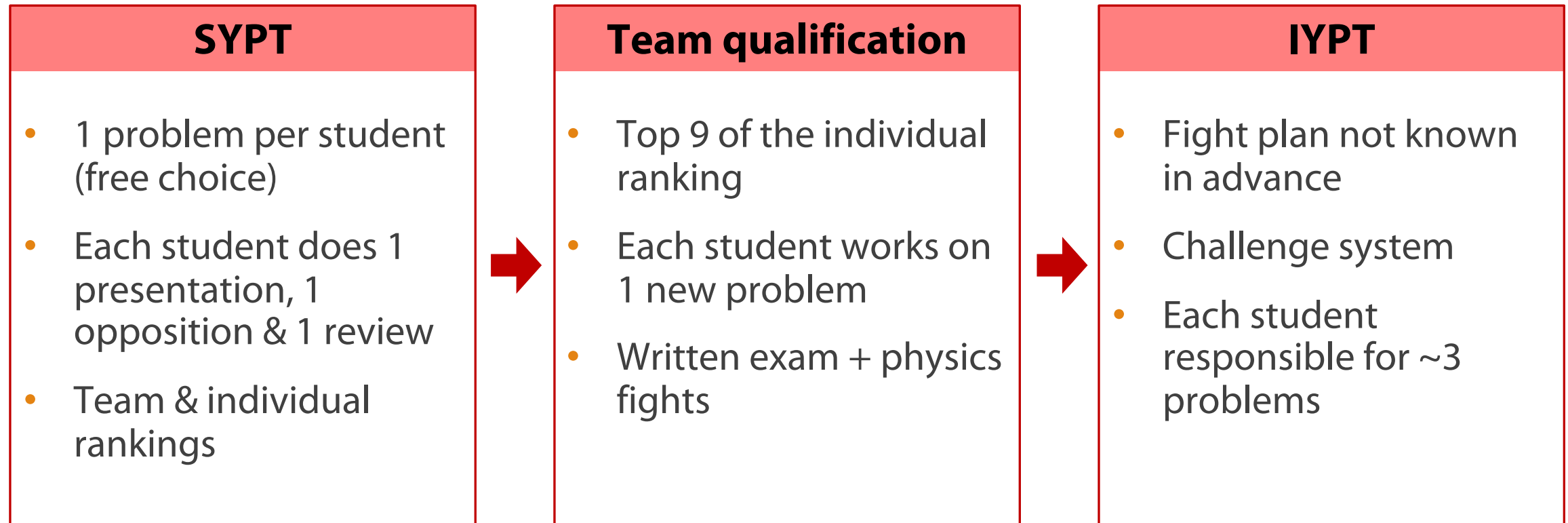
- **Open problems:** full solutions cannot be found in textbooks or papers
- **Novelty** valued as a judging criterion
- **Theoretical** and **experimental** approach required
- Students often led to use diverse **numerical tools**



Competition mode: scientific debate



Swiss team selection

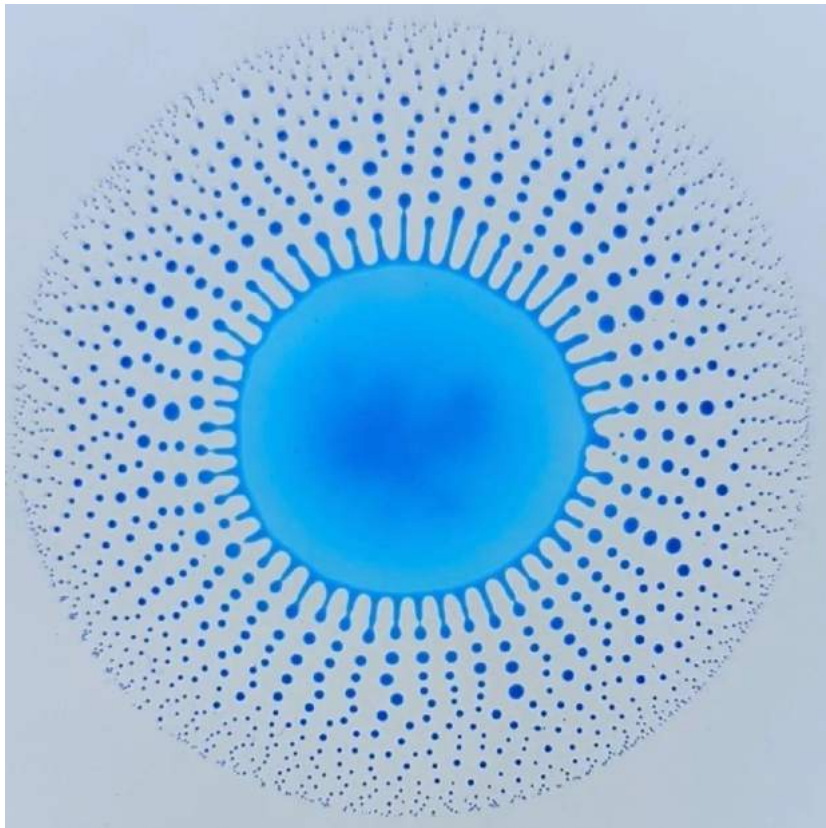


Experience

- Discovering physics **beyond high school curriculum**
- Learning important **skills**: teamwork, science communication, project management, critical thinking
- **Socializing** with peers who share similar interests
- **Travelling** around the world
- Further opportunities (SYS, publications, ...)



Example problem: fluid dynamics



Droplet Explosion

When a drop of a **water mixture** (e.g. water-alcohol) is deposited on the surface of a **hydrophobic** liquid (e.g. vegetable oil), the resulting drop may sometimes **fragment** into smaller droplets. Investigate the **parameters** that affect the fragmentation and the **size of the final droplets**.

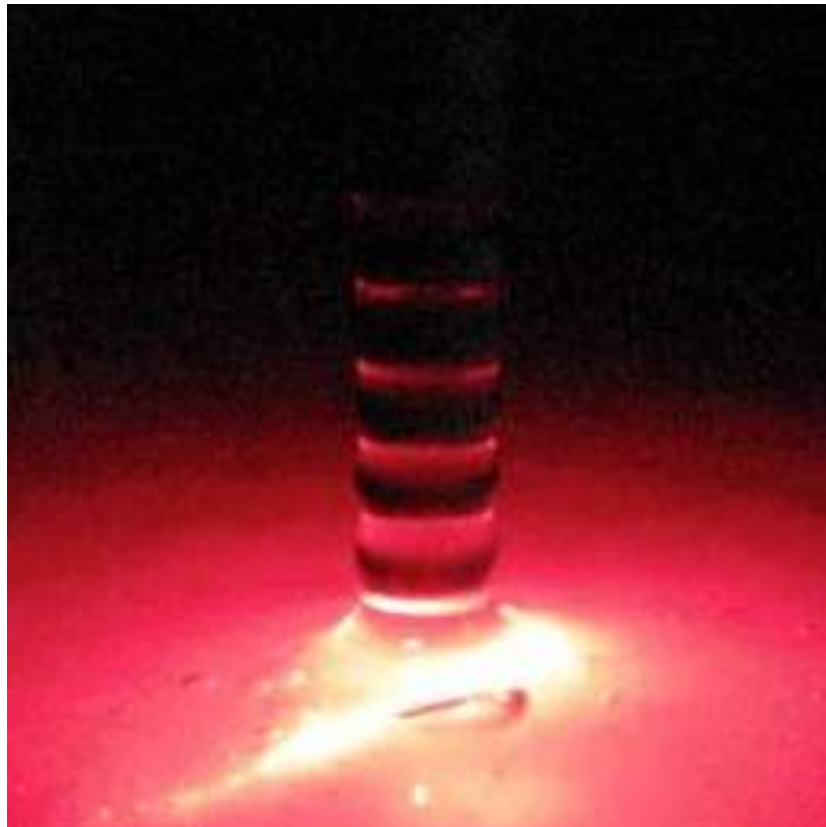
Example problem: mechanics

Ring on the Rod

A **washer** on a **vertical steel rod** may start **spinning** instead of simply sliding down. Study the **motion** of the washer and investigate what determines the **terminal velocity**.



Example problem: optics



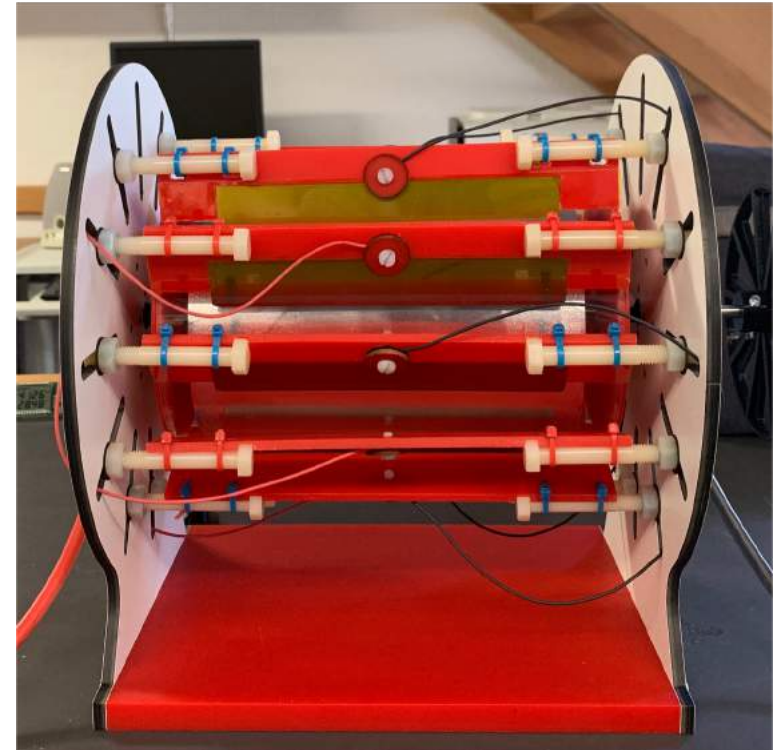
Light Rings

Let a **liquid jet** fall onto a surface. If the **contact point** is illuminated by a **laser beam**, **rings of light** around the jet can be observed. **Investigate** the light rings and determine how they depend on **relevant parameters** of the whole system.

Example problem: electrodynamics

Invent Yourself

Build a **simple motor** whose propulsion is based on **corona discharge**. Investigate how the rotor's motion depends on relevant **parameters** and **optimize** your design for **maximum speed** at a fixed input voltage.



SYPT Physics Week

- **Mid-February**, at MNG Rämibühl **Zurich**
- **Coaching** by teachers and former participants
- Access to **high-quality facilities** and equipment
- **Attractive program** with educative visits and fun outings
- **All costs covered**

mng rämibühl



Supervision within students' own school is **still necessary!**

Registration process

- Opens in **early fall**
- Until **31 December**
- **Online** registration at www.sypt.ch
- Teams of **three** are optimal
- Also possible to register a **single** student or a team of **two**
- There can be **more than one** team per school



Questions?

