# Arthur (Yi-Ting) Lin

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## Education

### Massachusetts Institute of Technology, US — 2023-present

**B.Sc. in Physics and Mathematics (expected)** — **GPA: 5.0/5.0**

**Relevant Coursework:**

**Current (Fall 2025):** Geometry and Physics of Supergravity and String Vacua, Lie Groups and Lie Algebras I

**Completed:**

**Graduate:** Quantum Field Theory I-III, General Relativity, String Theory and Holographic Duality, Statistical Mechanics I, Geometry of Manifolds I (Riemannian Geometry)

**Undergrad:** Relativity II (fast paced undergrad GR), Quantum Physics I-III, Introduction to Topology, Algebra I (Abstract and Linear Algebra), Nonlinear Dynamics: Continuum Systems, Real Analysis.

**Interest:** Quantum field theory, in particular effective field theories and algebraic aspects of QFTs.

## Research Experience

**Physik-Department T30F, Technische Universität München, Germany** — **Jun 2025-present**

**Keywords:** open quantum theory, heavy quarkonia suppression.
Supervisors: Prof. Nora Brambilla, Tom Magorsch.

- Simulated bottomonia suppression by implementing the PLQT algorithm in [2306.14876].
- Improved results of [2205.10289] by evaluating exact operators.

**Center for Theoretical Physics, MIT, US** — **Feb 2025-present**

**Keywords:** algebraic quantum field theory, module theory.
Supervisors: Prof. Shu-Heng Shao.

**LHCb Group, Dept. of Physics, MIT, US** — **Feb 2024-Aug 2024**

**Keywords:** machine learning, data analysis, LHCb collaboration.
Supervisors: Prof. Michael Williams, Dr. Blaise Delaney, Dr. Adrian Casais Vidal.

- Implemented machine learning algorithms to perform signal classification and statistics.
- Studied rare $B$ meson decays "$B \to KX$ , $X \to \eta\pi^+\pi^-$" for different particles $X$.
- Extracted the branching fractions of "$B^+ \to K^+ J/\psi$ , $J/\psi \to \eta\pi^+\pi^-$".
- Extracted the branching fractions of "$B^+ \to K^+\eta_c$ , $\eta_c \to \eta\pi^+\pi^-$".

**Dept. of Mech. E., National Chung Hsing University, Taiwan** — **Sep 2021-Jun 2022**

**Keywords:** nonlinear dynamics, perturbation theory.

- Developed theoretical models of nonlinear oscillations using perturbation theory.
- Recorded and classified oscillation modes under excitation for over 70 experimental configurations.
- Presented to top Japanese high school; attended city science fair and annual research presentation

## Awards

**Physics Olympiads**

Gold Medal, International Physics Olympiad, rank 11 — 2022
Silver Medal, Asian Physics Olympiad, rank 16 — 2022
Gold Medal, Asian Physics Olympiad, rank 19 — 2021

## Teaching

**MIT, US** — **2025**

Physics mentorship program

- Tutored students on advanced version of introductory electrodynamics (8.022).

**National Taiwan Normal University, Taiwan** — **2023, 2024**

International Physics Olympiad summer camp.

- Delivered lectures to classes of 35 high school students on undergrad level physics and problem solving.
- Coauthored 200-page lecture notes covering undergraduate topics from math methods to quantum physics.

**Taichung First Senior High School, Taiwan** **2020-2024**

Physics Olympiad preparation study group and lectures.

- Dedicated over 200 hours in organizing and giving lectures.
- Covered the foundational undergrad physics materials.
- Written more than 20 original long problems tailored to enhance problem solving skills.
- Supported preparation of at least 5 later International Physics Olympiad medalists.

## Outreach

- Hosted academic program with High School of Komoba, University of Tsukuba, Japan. 2022