Department of Applied Physics

15 tenure track faculty + 2 senior scientists

67 AP graduate students + 23 postdocs

6.3 years on average to completion

3 major areas + interdisciplinary research
Topical Interests

- Why is Tc so high?
- Can \( F = e^2 / r^2 \) be manipulated?
- Make wafer-scale 2D quantum materials
- How to best functionalize surfaces and interfaces
- Seeing through an opaque medium
- Robust quantum error correction
- Entangle qubits “on-demand”!
- Opto-mechanical tuning and application in Quantum Info
- Continuous monitoring of superconducting spin qubit
- Make random medium lase!
- Are there bounds to light-matter interactions?
- Physical neural networks? Quantum neural networks?
# Research

## Materials

![Materials Image]

## Optics

![Optics Image]

## Quantum Information

![Quantum Information Image]

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<tr>
<th>Condensed Matter / Solid State Physics</th>
<th>Quantum Information</th>
<th>Optics / Photonics</th>
<th>Biophysics</th>
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<tr>
<td>Charles Ahn</td>
<td>Michel Devoret</td>
<td>Hui Cao</td>
<td>Simon Mochrie (joint)</td>
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<td>Yu He</td>
<td>Dan Prober</td>
<td>Peter Rakich</td>
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<td>Sohrab Ismail-Beigi</td>
<td>Rob Schoelkopf</td>
<td>Doug Stone</td>
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<td>Vidvuds Ozolins</td>
<td>Shruti Puri</td>
<td>Logan Wright</td>
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<td>Aleksander Kubica</td>
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+ Tight collaborations with **Physics**, ESI, MEMS, ChemE, CS
  (Jack Harris, Diana Qiu, Eduardo da Silva Neto, Peijun Guo, Hong Tang, Fengnian Xia…)

Yale University
Why Yale AP?

Faculty awards: 5 Packard fellows, NAS, AAAS, FRS

Research productivity: Top 5 natural sciences yield AY22-23

Infrastructure: YQI, YINQE, Yale Cleanroom, Yale MCC

Big science:
- Quantum Information Science Centers (1+1 out of 5)
- NSF QLCI center for Robust Quantum Simulation
- Partner User Agreement with Brookhaven National Lab

New investments:
- Physical Sciences and Engineering Building on Science Hill
- University spending on science and engineering (~$2B)

Affordability: Stipend-to-cost-of-living ratio 1.3 - 2.5x peer institutes
Yale University
Startups from Applied Physics

Quantum Science Pioneer Michel Devoret Joins Alice and Bob as Scientific Advisor

By Matt Swayne  October 12, 2021

Alice and Bob, a quantum computer startup based in France, announced that Michel Devoret will be joining their team as a scientific advisor.
**Ph. D. Requirements and Highlights**

**First year fellowships:** all first-year Ph.D. students are financially supported by the department. During the year 1, a student typically will take “Special Investigation”.

Teaching experience is an integral part of graduate training; all students serve as **Teaching Fellows for one year** after year 1.

**Area examination in year 3:** students showcase breadth and depth of knowledge, chaired by advisor + 2-3 committee members.

**Course requirements:** At least 9 course units (including 2 SI), with strong encouragement of core courses in Quantum Mechanics, Electrodynamics, and Condensed Matter Physics. Require the Intro to AP seminar (AP576) in the fall semester of year 1.
AP Graduate Admissions AY23-24

Department of Applied Physics

GRE: Optional
TOFEL: required if English is not the primary language in college
Deadline: Dec 15, 2023
Fee: $105 (waiver info on Yale GSAS site)

Admitted students from previous years:
- multidisciplinary academic training
- clear objectives in statements
- diverse academic trajectories
- research experience is a plus but not required
- contact faculty encouraged but not required

Alexander Bozzi
Graduate Program Registrar, Applied Physics

Yale University
#1 tip for admission

Please **DO** reach out to faculty members AND students to discuss research opportunities!

Concerns/questions on:

General admission: graduate.admissions@yale.edu

AP admission: alexander.bozzi@yale.edu, yu.he@yale.edu

Research opening: email individual faculty member (**important!**)

If you don’t hear back from our faculty members, our apologies - a second email reminder always helps!
About New Haven, CT
Contact Info

Peter Rakich
Director of Graduate Studies

Yu He
Director of Graduate Admissions,
Applied Physics

Vidvuds Ozolins
Chair

Alexander Bozzi
Graduate Program Registrar,
Applied Physics
END