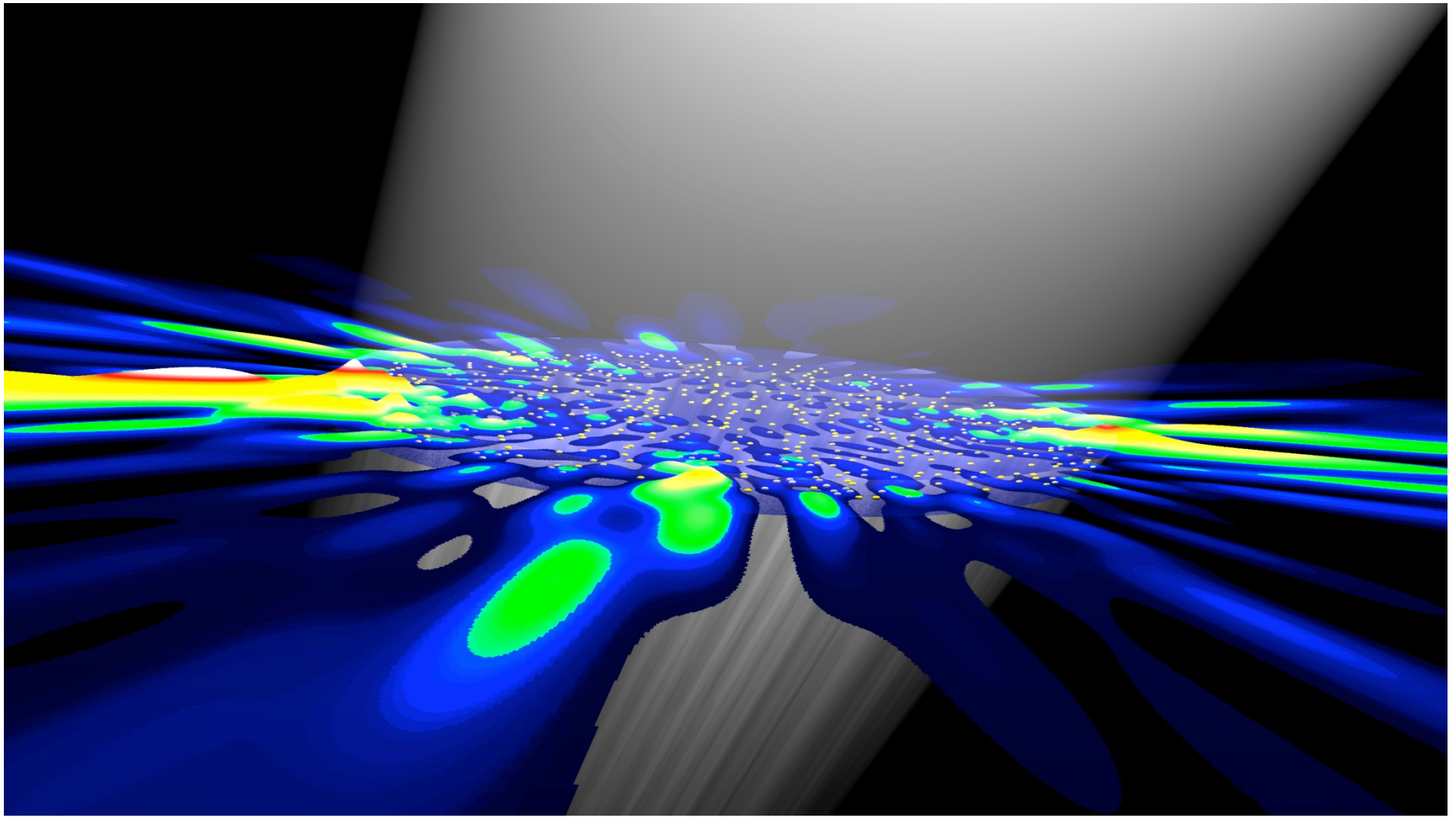
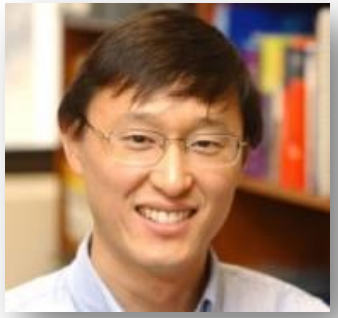
Department of Applied Physics

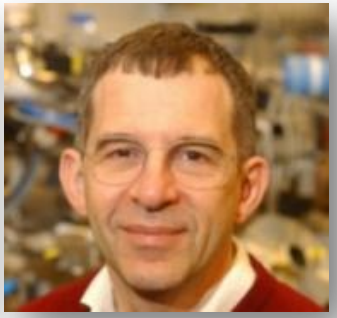


Yale University

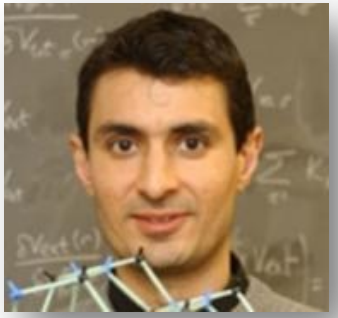
Department of Applied Physics


Charles Ahn

Hui Cao


Michel Devoret

Yu He


Sohrab Ismail-Beigi

Simon Mochrie

Owen Miller

Vidvuds Ozolins

Dan Prober

Shruti Puri

Peter Rakich

Nick Read

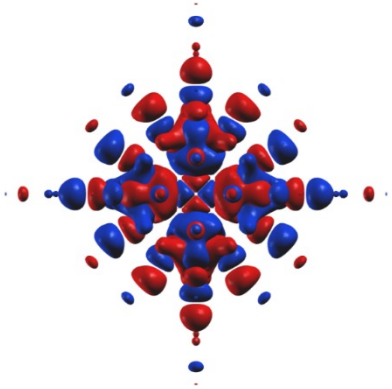
Peter Schiffer

Rob Schoelkopf

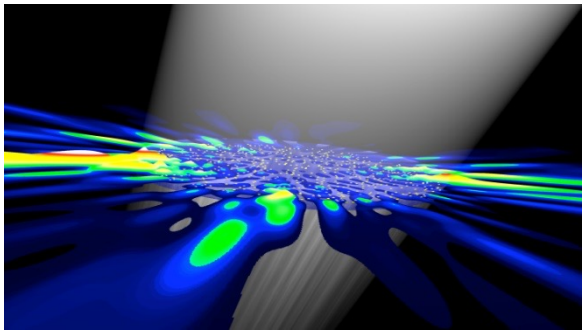
Doug Stone

Research

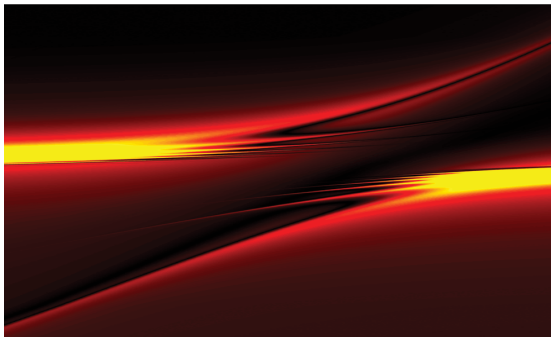
Materials



Optics



Quantum information



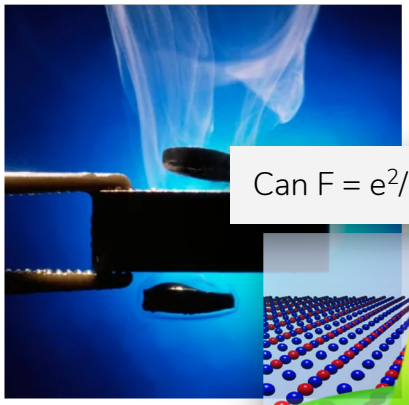
Quantum Materials	Quantum Information	Quantum Optics/Photonics	Biophysics
Charles Ahn	Michel Devoret	Hui Cao	Simon Mochrie (joint)
Yu He	Dan Prober	Peter Rakich	
Sohrab Ismail-Beigi	Rob Schoelkopf	Doug Stone	**Energy Sciences**
Peter Schiffer	Shruti Puri		Owen Miller
	Nick Read (joint)		Vidvuds Ozolins

+ Tight collaborations with Physics, ESI, MEMS, ChemE, CS
(Jack Harris, Diana Qiu, Eduardo da Silva Neto, Peijun Guo, Hongxing Tang, …)

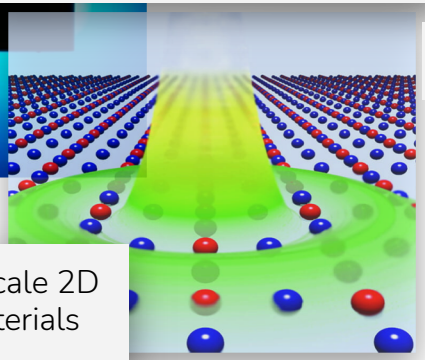
Yale University

Topical Interests

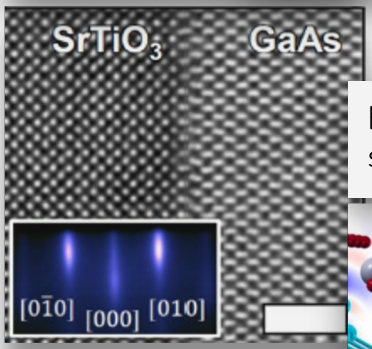
Why is Tc so high?



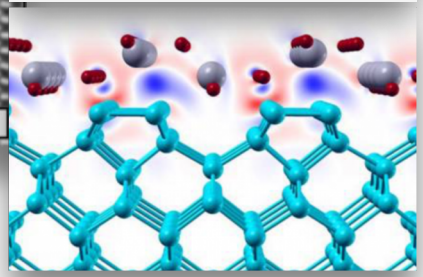
Can F = e^2/r^2 be manipulated?



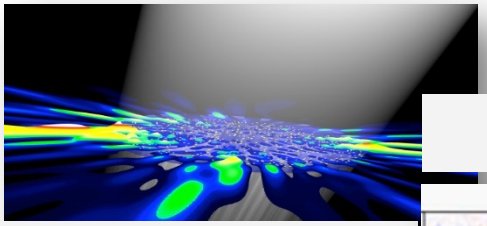
Make wafer-scale 2D quantum materials



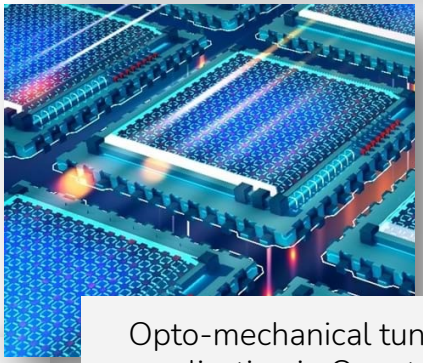
How to best functionalize surfaces and interfaces



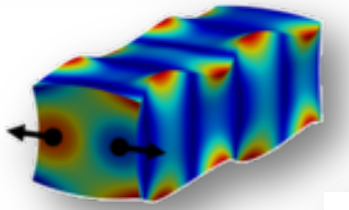
Make random medium lase!



Robust quantum error correction

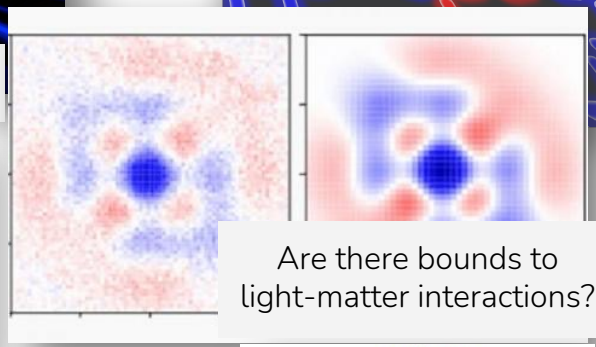


Opto-mechanical tuning and application in Quantum Info

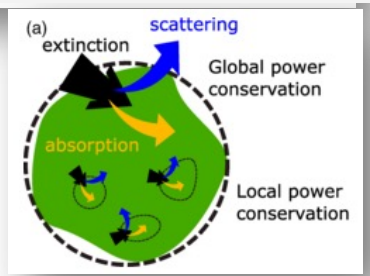


Harness the power of nano-magnetism

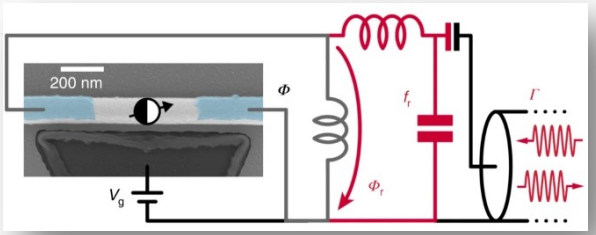
Entangle qubits “on-demand”!



Are there bounds to light-matter interactions?



Continuous monitoring of superconducting spin qubit



Yale University

Ph. D. Requirements and Highlights

First year fellowships: all first-year Ph.D. students are financially supported by the department. During the first year, a student typically will take "Special Investigation" (aka research rotation!)

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

Area examination in year 3: students showcase breadth and depth of knowledge, chaired by advisor

Course requirements: At least 9 course units (including SI), with strong encouragement of core courses in Quantum Mechanics, Electrodynamics, and Condensed Matter Physics

Yale University

The Future at Yale University

President Peter Salovey: We are going to spend disproportionately on science and engineering (~$2B).

University Science Strategy Committee chaired by Vice President Scott Strobel

Top priority: Quantum Science, Engineering, and Materials

School of Engineering and Applied Science (SEAS) strategic planning

Close tie to US DOE facilities: Brookhaven National Lab

Distinguished research and leadership activity

Awards: 5 Packard fellows, NAS, AAAS, FRS

1 Sterling professorship, 7 endowed professorships

Leadership: Vice Provost for Research
Directors of CRISP, YQI, YINQE, Yale Cleanroom

2/5 national Quantum Information Science centers (>$100M):

C^2QA · Co-design Center for Quantum Advantage

Director: Steve Girvin

QSA · Quantum Systems Accelerator

Director: Irfan Siddiqi

NSF QLCI center for Robust Quantum Simulation ($25M)

Yale lead: Shruti Puri

Yale University

Applied Physics Recent Alumni

Princeton

Houck

Berkeley

Siddiqi

Wisconsin

Vavilov

Chicago

Schuster

NIST/CU

Teufel

MIT

Kolpak

Princeton

Tureci

Delft

DiCarlo

Vienna

Majer

Tsinghua

Sun

ETH Zurich

Walraff

McGill

Clerk

Northwestern

Koch

Erlangen

Marquardt

Cornell

Colgate

Segall

Innsbruck

Kirchmair

Chalmers

Isacsson

Surrey

Ginossar

Maryland

Manucharyan

Jülich

Catelani

JILA

Lehnert

Yale University

Startups from Applied Physics

NEWS

Quantum Circuits, Inc., a Quantum Computer Startup out of Yale, Opens Lab in New Haven

VIDEO

Robert Schoelkopf talks about the quest to build a quantum computer at the World Economic Forum

STARTUPS

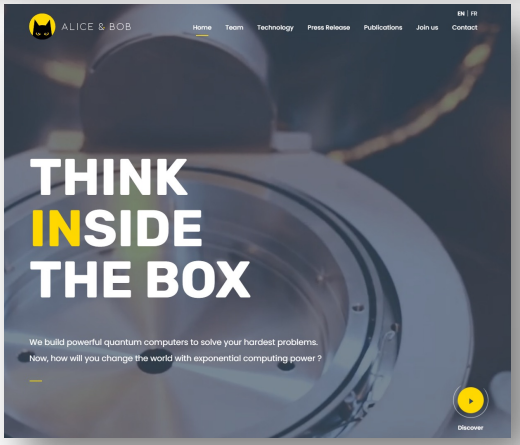
Quantum Science Pioneer Michel Devoret Joins Alice and Bob as Scientific Advisor

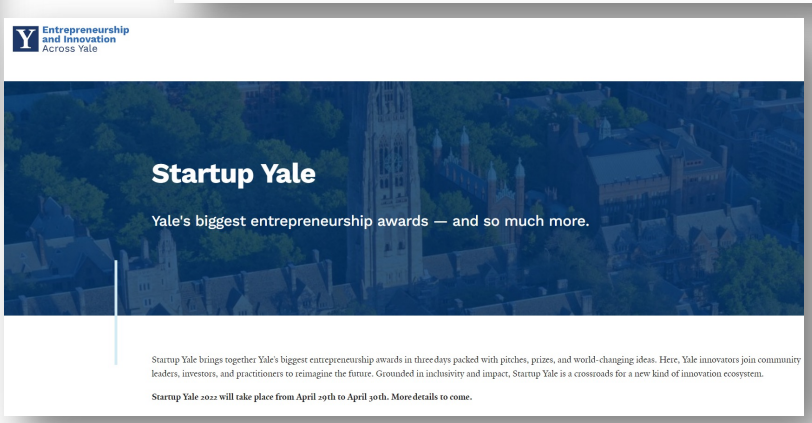
By **Matt Swayne** October 12, 2021

Facebook | Twitter | Linkedin | Email

Quantum science pioneer Michel Devoret will be joining the Alice and Bob team as a scientific advisor.

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





Yale University

Contact Info

Prof. Peter Schiffer
Director of Graduate Studies

Prof. Vidvuds Ozolins
Chair

Prof. Owen Miller
Director of Graduate Admissions, Applied Physics

Alexander Bozzi
Graduate Program Registrar, Applied Physics

Yale University