



U.S. DEPARTMENT OF
ENERGY

Office of
Science

2022 NSF/DOE/AFOSR Quantum Science Summer School
University of California at Santa Barbara, July 18 – 29, 2022
All events take place in Elings Hall 1605 (*Unless otherwise noted*)

Monday, July 18th

TIME	TOPIC	SPEAKER(S)
8:40 am – 9:00 am	Welcome	Andrea Young
9:00 am – 10:00 am	Predicting And Probing Carrier Interactions In Quantum Matter Using Electron Hydrodynamics	Prineha Narang
10:00 am – 10:30 am	Coffee Break	
10:30 am – 11:30 am	Bandstructure engineering in layered 2D heterostructures	Cory Dean
11:30 am – 1:30 pm	Lunch Break	
1:30 pm – 3:00 pm	Crystal Modeling	Joe Checkelsky
3:00 pm – 4:00 pm	Introductions	Joe Checkelsky
EVENING	Free time	

Tuesday, July 19th

TIME	TOPIC	SPEAKER(S)
9:00 am – 10:00 am	Lattice-mediated Interactions in Quantum Matter	Prineha Narang
10:00 am – 10:30 am	Coffee Break	
10:30 am – 11:30 am	Strain and disorder in moire-patterned 2D materials	Cory Dean
11:30 am – 1:30 pm	Lunch Break	
1:30 pm – 3:00 pm	Crystal Modeling	Joe Checkelsky
3:00 pm – 4:00 pm	Poster Talks 1	
4:00 pm – 6:00 pm	Posters 1 (Elings Hall, Bamboo Courtyard)	
EVENING	Free time	

Wednesday, July 20th

TIME	TOPIC	SPEAKER(S)
9:00 am – 10:00 am	Moire excitons in semiconducting moire superlattices	Chenhao Jin
10:00 am – 10:30 am	Coffee Break	

10:30 am – 11:30 am	Applications of Metamaterials for QIS I	Thomas Searles
11:30 am – 1:30 pm	Lunch Break	
1:30 pm – 4:00 pm	Open Lab Visits	Rachel Schoepner
EVENING	Free time	

Thursday, July 21st

TIME	TOPIC	SPEAKER(S)
9:15 am – 10:15 am	Critical fluctuations in two-dimensional magnets	Chenhao Jin
10:15 am – 10:45 am	Coffee Break	
10:45 am – 11:45 am	Applications of Metamaterials for QIS II	Thomas Searles
11:45 am – 1:30 pm	Lunch Break	
1:30 pm – 3:00 pm	Active Learning I	Joe Checkelsky, Kyle Shen
3:00 pm – 4:00 pm	Group Photo	QS3 Organizers
EVENING	Free time	

Friday, July 22nd

TIME	TOPIC	SPEAKER(S)
9:15 am – 10:15 am	Oxide Molecular Beam Epitaxy	Susanne Stemmer
10:15 am – 10:45 am	Coffee Break	
10:45 am – 11:45 am	Bulk Crystal Synthesis I	Stephen Wilson
11:45 am – 1:30 pm	Lunch Break	
1:30 pm – 4:00 pm	Hands-on Activities	Eli Zoghlin
EVENING	Free time	

Monday, July 25th

TIME	TOPIC	SPEAKER(S)
9:15 am – 10:15 am	Topological Heterostructures by Molecular Beam Epitaxy	Susanne Stemmer
10:15 am – 10:45 am	Coffee Break	
10:45 am – 11:45 am	Bulk Crystal Synthesis II	Stephen Wilson
11:45 am – 1:30 pm	Lunch Break	
1:30 pm – 4:00 pm	Hands-on Activities	Stephen Wilson
5:30pm - 7:30pm	Beach BBQ Dinner (Goleta Beach Area A)	
EVENING	Free time	

Tuesday, July 26th

TIME	TOPIC	SPEAKER(S)
9:15 am – 10:15 am	Engineering quantum materials' properties with light	Matteo Mitrano

10:15 am – 10:45 am	Coffee Break	
10:45 am – 11:45 am	2D halide perovskites	Hemamala Karunadasa
11:45 am – 1:30 pm	Lunch Break	
1:30 pm – 3:00 pm	Electrochemical Synthesis of Quantum Materials	Kent Zheng
3:00 pm – 4:00 pm	Poster Talks 2	
4:00 pm – 6:00 pm	Posters 2 (Elings Hall, Bamboo Courtyard)	
EVENING	Free time	

Wednesday, July 27th

TIME	TOPIC	SPEAKER(S)
9:15 am – 10:15 am	Advances in X-ray spectroscopy of light-driven quantum materials	Matteo Mitrano
10:15 am – 10:45 am	Coffee Break	
10:45 am – 11:45 am	3D halide perovskites	Hemamala Karunadasa
11:45 am – 1:30 pm	Lunch Break	
1:30 pm – 2:30 pm	Pushing the limits of purity in epitaxial binary oxides	Joe Falson
2:30 pm – 4:30 pm	Industry Panel	Chair: TBD Speakers: TBD
EVENING	Free time	

Thursday, July 28th

TIME	TOPIC	SPEAKER(S)
9:15 am – 10:15 am	New tools in epitaxy: towards the darker corners of the periodic table	Joe Falson
10:15 am – 10:45 am	Coffee Break	
10:45 am – 11:45 am	Introduction to topological insulators	Jennifer Cano
11:45 am – 1:30 pm	Lunch Break	
1:30 pm – 3:00 pm	Active Learning II	Natalia Drichko
EVENING	Free time	

Friday, July 29th

TIME	TOPIC	SPEAKERS
9:15 am – 10:15 am	Topological semimetals	Jennifer Cano
10:15 am – 10:45 am	Coffee Break	
10:45 am – 11:45 am	School Summary	Natalia Drichko
11:45 am – 1:30 pm	Lunch Break	
	SCHOOL ENDS	