

2021 Virtual School on Electron-Phonon Physics and the EPW code

June 14-18 2021



U.S. DEPARTMENT OF
ENERGY

TACC

Organizers



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Instructors

TAs:

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Xiao Zhang, U Michigan

Kyle Bushick, U Michigan

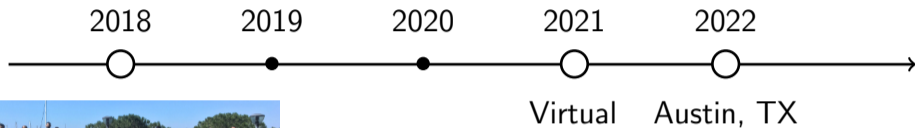
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Joshua Leveillee, UT Austin

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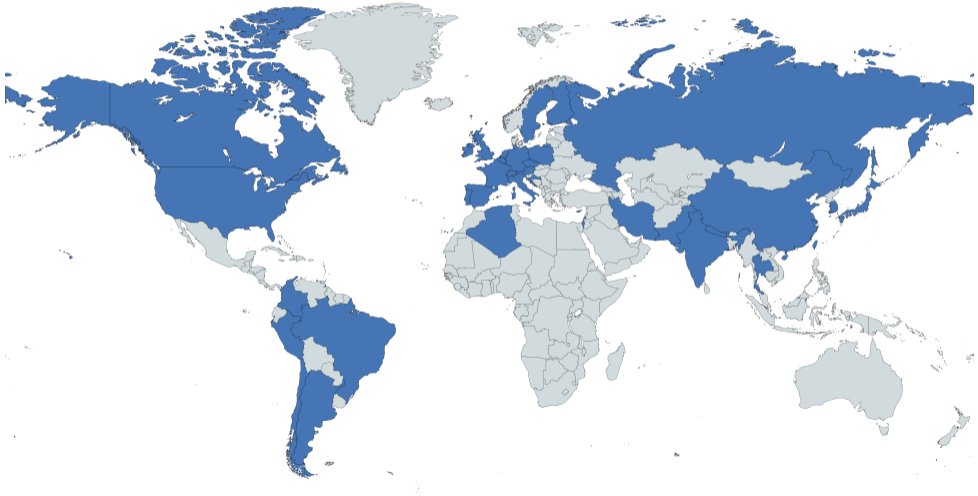
ICTP Trieste



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158 Participants, 9 Instructors, 10 TAs from 38 Countries



Day	Time	Activity	Instructor
Monday 14 June	7-7:10AM	Welcome & Intro	Giustino
	7:10-8:10AM	Lecture: DFT, DFPT, and Quantum Espresso	Giannozzi
	8:10-9:10 AM	Lecture: Maximally-localized Wannier functions	Marzari
	9:10-9:20AM	break	
	9:20-10:10AM	Hands-On Intro: Wannier90	Pizzi
	10:10AM:12PM	Hands-On Session: Quantum Espresso and Wannier90	Pizzi
Tuesday 15 June	7-7:45AM	Lecture: Intro to electron-phonon interactions	Giustino
	7:50-8:35AM	Lecture: Many-body methods for electron-phonon interactions	Giustino
	8:40-9:10AM	Lecture: Intro to the EPW code and recent developments	Lee
	9:10-9:20AM	break	
	9:20-10AM	Hands-On Intro: Running EPW	Lee
	10AM:12PM	Hands-On Session: Electron-phonon matrix elements and coupling strength	Lee
Wednesday 16 June	7-8AM	Lecture: Carrier transport and Boltzmann equation	Poncé
	8-9AM	Lecture: Phonon-assisted optical processes	Kioupakis
	9-9:10AM	break	
	9:10-10AM	Hands-On Intro: The transport module of EPW	Poncé
	10AM:12PM	Hands-On Session: Calculation of carrier mobilities	Poncé
Thursday 17 June	7-8AM	Lecture: Superconductors and Eliashberg theory	Margine
	8-9AM	Lecture: Polarons from first principles	Giustino
	9-9:10AM	break	
	9:10-9:40	Hands-On Intro: Phonon-assisted absorption with EPW	Kioupakis
	9:40-10:20	Hands-On Session: Calculating phonon-assisted optical spectra	Kioupakis
	10:20-11AM	Hands-On Intro: The superconducting module of EPW	Margine
	11AM:12:30PM	Hands-On Session: Calculations of superconducting T_c	Margine
Friday 18 June	7-8AM	Lecture: The special displacement method	Zacharias
	8-9AM	Hands-On Session: Temperature-dependent band structures and optical spectra	Zacharias
	9-9:20AM	break	
	9:20-11:30AM	Poster Session	
	11:30AM:12PM	Conclusion	Organizers

Webinar mode

Break

Meeting mode



Poster session & prizes

42 Posters



Info, Schedule, Slides, Tutorial Sheets:

epw2021.oden.utexas.edu