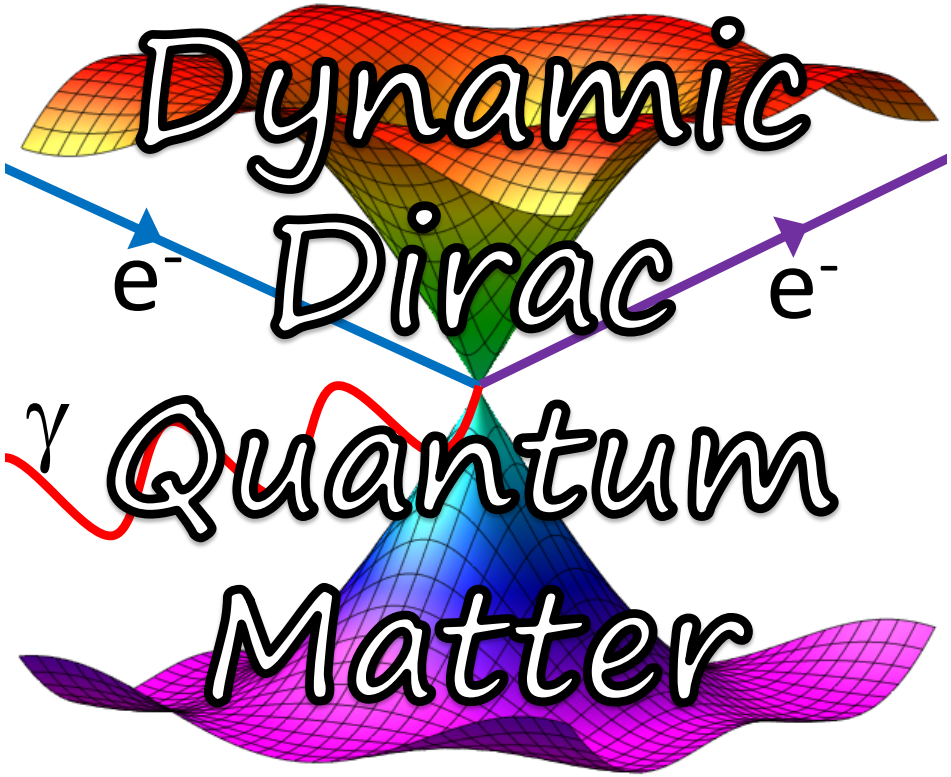


Hampton Inn Oceanfront

Jacksonville Beach, Florida

December 16 – 20, 2019

Organizers:

J.T. Haraldsen**, University of North Florida**
A.V. Balatsky**, Nordic Institute for Theoretical Physics and UCONN**

Loraine Morgan**, University of North Florida**
Aditi Mahabir**, University of North Florida**

We are thankful fo sup t f n the

University of North Florida

UNF Physics Department

UNF Academi irs

UN lege of s and ienc

UNF Materials ien d En eerin esearch Facility

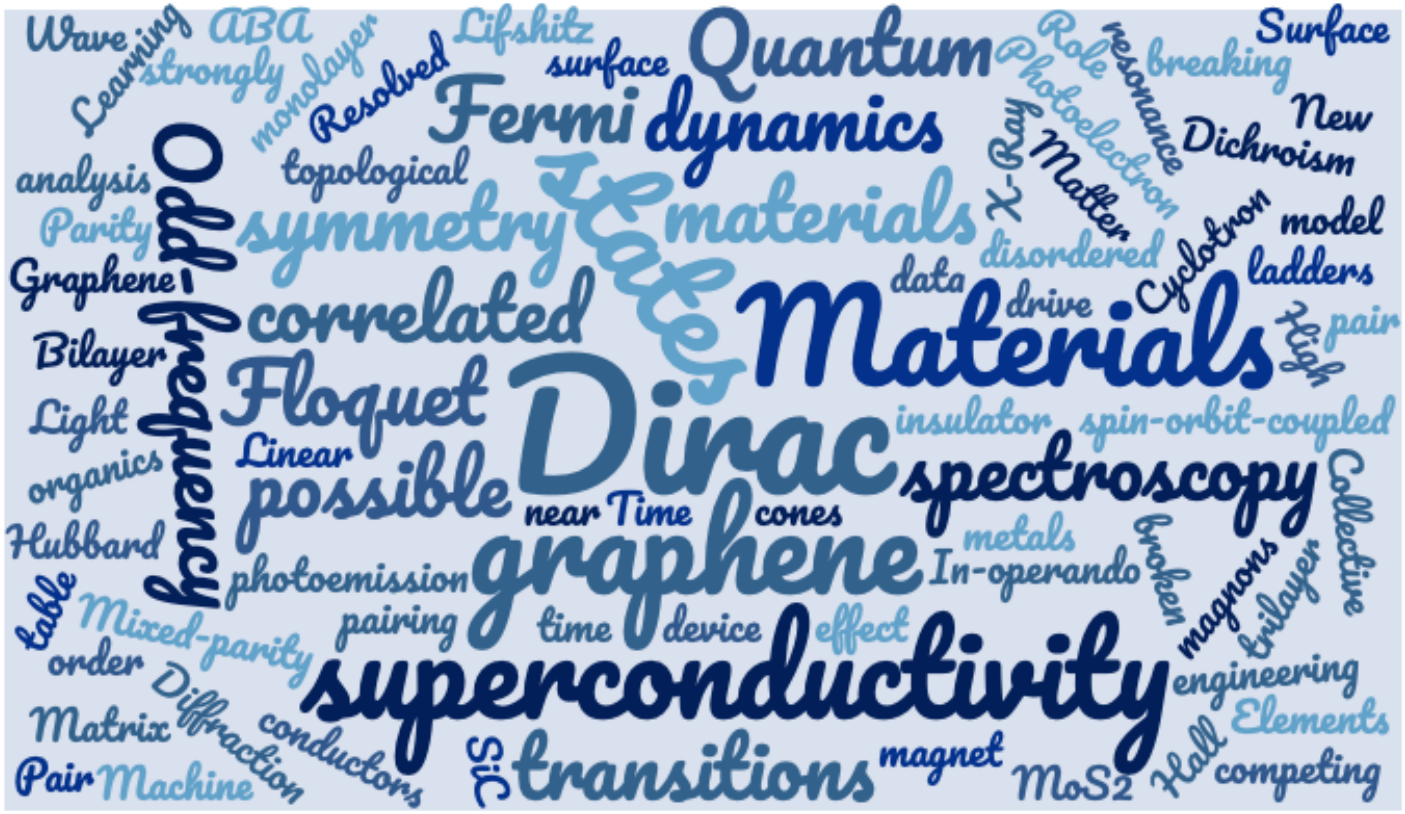
In te fo ls Science at Los Alamos National Laboratory

National High Magnetic Field Laboratory

and

Nordic Institute for Theoretical Physics

And You!

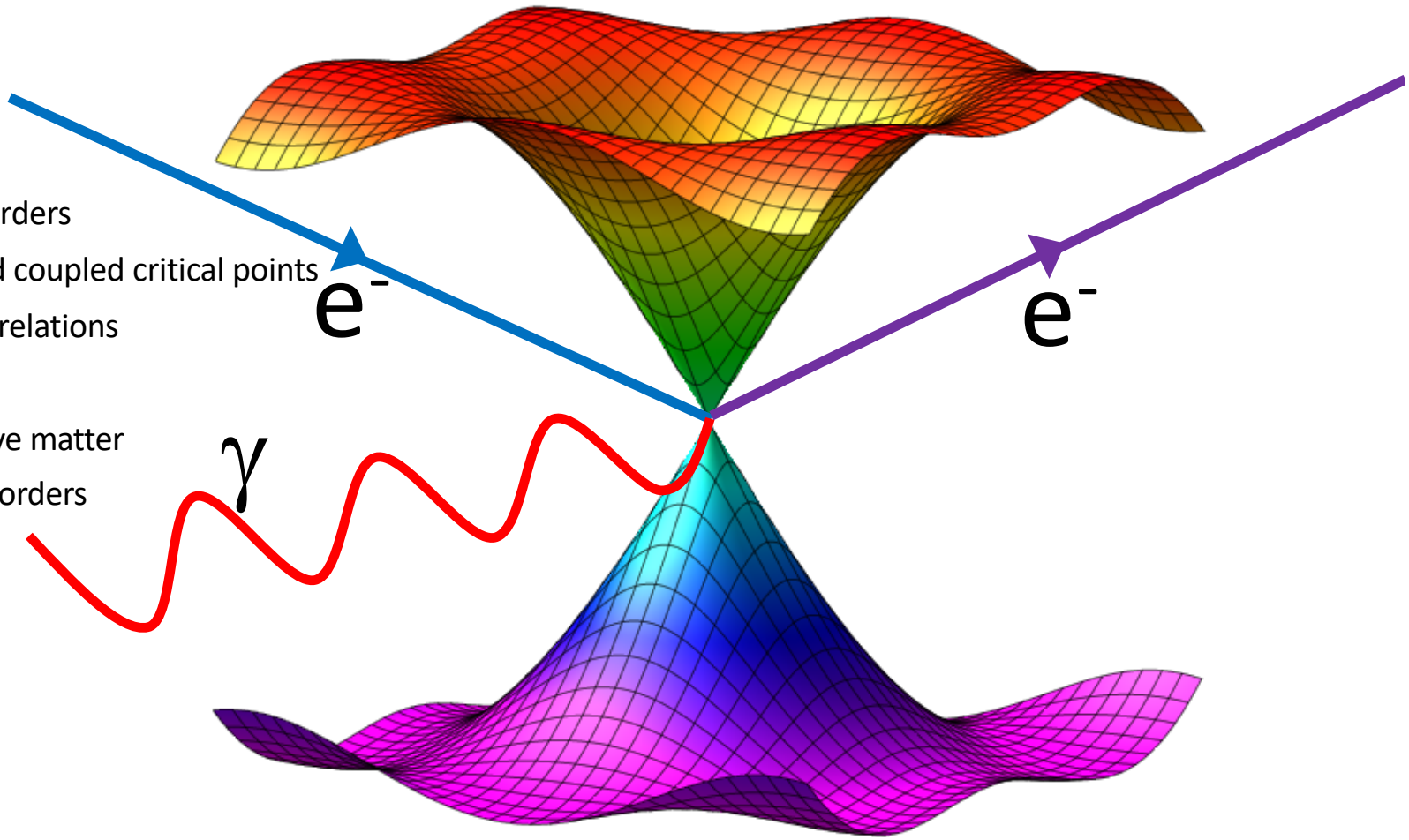


In this conference, the recent developments in the dynamic new and exciting field of quantum matter will be showcased. At this conference, key researchers active in a broad range of topics will come together and provide the latest details into the realization of these materials. Overall, the goal of this workshop is to bring together researchers from all over the globe to discuss and highlight emerging topics and ideas that help drive our understanding of quantum matter and that are stimulating the growth of Dynamic Dirac Quantum Matter.

Dynamic Dirac Quantum Matter

Scope:

- Dynamic Dirac Materials
- Entangled and competing orders
- Dynamic multiferroicity and coupled critical points
- Transient dynamics and correlations
- Dynamics of hidden orders
- Discoveries of classical active matter
- Hidden and odd frequency orders



Dynamic Dirac Quantum Matter

Dynamic Dirac Quantum Matter

Dynamic Dirac Quantum Matter

Conference talks are concluded.
We will move to the round table focus-topic discussions.

Thursday, December 19

9:00 – 11:30 a.m. – Topic-Focused Round Table Discussions

12:00 – 2:30 p.m. – Lunch on own

1:00 – 2:00 p.m. – Tour of UNF Physics Department and MSERF (Materials Science and Engineering Research Facility) – The van leaves at 12:40 p.m. and returns at 2:20 p.m.

2:30 – 5:00 p.m. – Topic-Focused Round Table Discussions

5:00 p.m. – Dinner on own

Friday, December 20

9:00 – 12:00 p.m. – Topic-Focused Round Table Discussions

12:00 – 2:00 p.m. – Lunch on own

2:00 – 5:00 p.m. – Topic-Focused Round Table Discussions

5:00 p.m. – Dinner on own

Saturday, December 21

11:00 am – Check out

Possible Topics of Discussion:

- Machine Learning
- Quantum Dynamics
- Quantum Matter (equilibrium and non-equilibrium)

Dynamic Dirac Quantum Matter

Quantum Dynamics

- Time domain: transient phenomena: single particle, collective
- Transient topology: Weyl and Dirac, changes in Berry
- Transient topo: collective states : SC, exciton
- Floquet: drives and inverse
- Spectroscopy of driven quantum matter

Dynamic Dirac Quantum Matter

Quantum Matter

- Equilibrium correlated
- Unconventional SC, f-electron, odd f
- Fractionalization vs cooperation
- Twisted Dirac matter
- Dirac magnons

Dynamic Dirac Quantum Matter

Quantum Imaging and Machine Learning

- STM
- Attosecond imaging
- ML for imaging and spectroscopy