Ruthenate And Rutheno Cuprate Materials Unconventional Superconductivity Magnetism And Quantum Phase Transitions

#Ruthenate materials #Rutheno Cuprate #Unconventional Superconductivity #Quantum Phase Transitions #Condensed Matter Magnetism

Delve into the fascinating world of Ruthenate and Rutheno Cuprate materials, known for their captivating unconventional superconductivity and intriguing magnetic properties. These materials serve as critical systems for exploring complex quantum phase transitions, offering deep insights into emergent phenomena in condensed matter physics.

Ruthenate And Rutheno Cuprate Materials Unconventional Superconductivity Magnetism And Quantum Phase Transitions

Miguel M. Ugeda - Unconventional superconductivity in two-dimensional Van der Waals materials - Miguel M. Ugeda - Unconventional superconductivity in two-dimensional Van der Waals materials by IFIMAC-ICMM Joint Seminar Series 764 views Streamed 3 years ago 1 hour, 21 minutes - ... many body electronic **phases**, such as mod **phases magnetic**, order or even **quantum**, spin liquids in these **materials**, in the single ...
K. Efetov 05 - Antiferromagnetic states and phase transitions in Cuprates. - K. Efetov 05 - Antiferromagnetic states and phase transitions in Cuprates. by IPhT-TV 681 views 9 years ago 47 minutes - Quantum, criticality and high-temperature **superconductivity**, By Konstantin Efetov, IPhT, Chaire Blaise Pascal & Bochum U. 10 ...
Illuminating strongly correlated materials and unconventional superconductors - Illuminating strongly correlated materials and unconventional superconductors by Virtual Science Forum 395 views 1 year ago 41 minutes - by Fahad Mahmood.
Intro
Some key problems in strongly correlated physics
Multidimensional spectroscopies of correlated materials
THz 2D coherent spectroscopy
Electron (or Coulomb) glass Phosphorus doped silicon
Anderson insulator vs electron glass
Non-Fermi liquids/strange metals

Third order nonlinear response
2D THz spectroscopy of a Coulomb glass
Summary
What comes next? Detecting fractional excitations in complex magnetic insulators
Reminder: single electron ARPES
Double-ARPES on unconventional superconductors Theoretical formalism
Double-ARPES on d-wave superconductors
Double-ARPES on a FFLO phase
Double-ARPES -- experimental realization
Shameless plug Multidimensional spectroscopies of quantum materials
THz nonlinear response in cuprates Nonlinear response of overdoped LSCO
Wei-Sheng Lee: RIXS Studies on Charge Order Phenomena in Cuprate and Nickelate Superconductors - Wei-Sheng Lee: RIXS Studies on Charge Order Phenomena in Cuprate and Nickelate Superconductors by Center for Integrated Quantum Materials 599 views 1 year ago 50 minutes - This was taken after the TC so it's not in the surcoming **phase**, later I will show you the the data taken in the Superman **phase**, ...
High Temperature Superconductors Finally Understood - High Temperature Superconductors Finally Understood by Science Discussed 21,998 views 1 year ago 10 minutes, 24 seconds - A room-temperature **superconductor**, would completely **change**, electronics and now we finally understand what makes ...
Role of Pressure in Recent Superconductor Experiments
How Unconventional Superconductors Work
Mechanism for the Attractive Force between Electrons
Super Exchange
What Does this Mean for the Future of Material Fabrication
Andrea Cavalleri - Advances in Optically Driven Cuprate Superconductivity (April 11, 2023) - Andrea Cavalleri - Advances in Optically Driven Cuprate Superconductivity (April 11, 2023) by Simons Foundation 571 views 11 months ago 1 hour, 9 minutes - More details: https://www.simonsfoundation.org/event/ccq-**quantum**,-cafe-with-andrea-cavalleri/
The Physics of superconductors - The Physics of superconductors by Higgsino physics 447,974 views 5 years ago 8 minutes, 43 seconds - How a **superconductor**, works. Everything from the physics and some of the history as well. **Superconductors**, were discovered in ...
Introduction
What is conduction
Temperature and resistance
Superconductivity explanation
Meissner effect and applications
RCQM Symposium on Fe-based Superconductivity - Session V - RCQM Symposium on Fe-based Superconductivity - Session V by Rice Center for Quantum Materials 123 views 3 years ago 1 hour, 43 minutes - ... a **magnetic phase**, is suppressed typically ending in a pugetive **quantum**, critical point and eventually a **superconducting**, dome ...
Anna Böhmer - Iron-based superconductors: Materials, magnetism and tuning methods - Anna Böhmer - Iron-based superconductors: Materials, magnetism and tuning methods by IFIMAC-ICMM Joint Seminar Series 1,244 views Streamed 3 years ago 58 minutes - Second talk of the IFIMAC+ICMM Joint Seminar Series in 2021 presented by Anna Böhmer on the 21st of January, 2021.
Introduction
Order
Ironbased superconductors
magnetoelastic coupling
what can we understand
measuring superconductivity
sample length change
measurement setup
mixed phases
orthorhombic distortion
new phase
what comes first
Pneumatic susceptibility
Summary

Spin density wave
Nematic susceptibility
Parallel or antiparallel
Magnetic vortex
New superconductor
Magnetism
Empty phase diagram
Magnetic order
Summary of magnetism
Summary of materials
Spin vortex crystal
Quantum critical point
Pneumatic phase
How does superconductor work?demonstration and explanation with animation. - How does superconductor work?demonstration and explanation with animation. by budding scientist 29,191 views 4 years ago 2 minutes, 55 seconds - Superconductivity, was first discovered in 1911 when mercury was cooled to approximately 4 degrees Kelvin by Dutch physicist ...
What is Conductivity & Superconductivity as Fast as Possible - What is Conductivity & Superconductivity as Fast as Possible by Techquickie 172,304 views 9 years ago 3 minutes, 5 seconds - What actually causes the heat in your PC. How could we have a smaller, faster computer? **Superconductivity**,! Credits: Hosting ...
The Incredible Potential of Superconductors - The Incredible Potential of Superconductors by Real Engineering 559,425 views 5 months ago 14 minutes, 8 seconds - Credits: Writer/Narrator: Brian McManus Writer: Josi Gold Editor: Dylan Hennessy Animator: Mike Ridolfi Animator: Eli Prenten ...
Intro
Superconductivity
Unconventional Superconductors
LK99
How do Superconductors work at the Quantum level? - How do Superconductors work at the Quantum level? by Arvin Ash 321,305 views 2 years ago 13 minutes, 50 seconds - 0:00 Onnes discovers "magic" 2:51 Meissner effect 4:05 What causes resistance 6:09 BCS Theory 8:11 Cooper pairs 9:11 ...
Onnes discovers "magic"
Meissner effect
What causes resistance
BCS Theory
Cooper pairs
Bose-Einstein condensate
First room temp superconductor
Maglev trains
Audible special offer
What's Up With Superconductors? With Neil deGrasse Tyson - What's Up With Superconductors? With Neil deGrasse Tyson by StarTalk 205,691 views 7 months ago 8 minutes, 29 seconds - What's up with **superconductivity**,? Neil deGrasse Tyson breaks down what **superconductivity**, means and how it could help **change**, ...
What is Conductivity?
What is Superconductivity?
How Can We Use Superconductors?
Can We Make A Room Temperature Superconductor?
Magnetic Fields & Supercolliders
How the BCS Theory of Superconductivity Works - Animated - How the BCS Theory of Superconductivity Works - Animated by Love to Learn 20,828 views 1 year ago 8 minutes, 30 seconds - We discuss how **superconductivity**, works and how a **superconductor**, can have a levitating **magnet**, above it. Specifically, we ...
Superconductivity - A Level Physics - Superconductivity - A Level Physics by DrPhysicsA 197,119 views 12 years ago 12 minutes, 50 seconds - A description of **superconductivity**, - in a little more detail than you need at A Level - to explain the basic concepts of a **quantum**, ...
Introduction
Superconductivity

Cooper pairs
Meissner effect
Quantum Vortices and Superconductivity + Drake Equation Challenge Answers - Quantum Vortices and Superconductivity + Drake Equation Challenge Answers by PBS Space Time 435,731 views 7 years ago 9 minutes, 3 seconds - Scientists studying **quantum**, vortices and their impact on **superconductivity**, just won the Nobel Prize. Get your own Space Time ...
Alexandra Paramor
Edvin K
Peter Hallam
Cooper pairs | Electron Attraction in Superconductors - Cooper pairs | Electron Attraction in Superconductors by Core of Science 39,365 views 4 years ago 4 minutes, 41 seconds - Physics of **superconductivity**, and Cooper pairs. Animation of electrons motion in a **superconductor**,. Cooper pair formation.
Introduction
Superconductivity
Cooper pairs
Why
Quantum Physics in One Dimension: Charge Density Waves - Quantum Physics in One Dimension: Charge Density Waves by Xenosum 12,328 views 3 years ago 9 minutes, 24 seconds - Perturbation theory breaks down in one dimension. See how this can lead to charge density wave ordering. References: Charge ...
Introduction
Quantum Mechanics
Diagonalization
Scanning tunneling microscopy
Nonlinearity
Conclusion
Dai Aoki (Tohoku University) “Multiple Superconducting Phases and Field-induced Phenomena in UTe2” - Dai Aoki (Tohoku University) “Multiple Superconducting Phases and Field-induced Phenomena in UTe2” by Rice Center for Quantum Materials 478 views 2 years ago 57 minutes - ABSTRACT: We present our recent results on heavy fermion paramagnet UTe2 as a candidate for novel spin-triplet ...
Contents
Single transition in higher quality sample
The case for FM-SC
Multiple superconducting phase in UTez
Inverse magnetic susceptibility
Knight shift
The cuprate phase diagram: theory of the pseudogap metal, d-wave superconductivity, and charge order - The cuprate phase diagram: theory of the pseudogap metal, d-wave superconductivity, and charge order by Subir Sachdev 434 views 11 months ago 2 hours, 1 minute - Hong Kong University, March 15, 2023.
Steve Kivelson - Low energy physics of the cuprate high temperature superconductors - Steve Kivelson - Low energy physics of the cuprate high temperature superconductors by Israel Institute for Advanced Studies 5,282 views 7 years ago 1 hour, 27 minutes - Steve Kivelson (Stanford University) - Low energy physics of the **cuprate**, high temperature **superconductors**,.
Intro
Phase diagram
Temperature vs X
Bad metal regime
Conventional numbers
Why study cuprates
Other questions
High magnetic fields
Quantum critical points
Scaling
System at 0
Catherine Pépin, Charge order and Strange metals in cuprate superconductors - Catherine Pépin, Charge order and Strange metals in cuprate superconductors by HyperComplex Seminar 166 views 2

years ago 1 hour, 2 minutes - Catherine Pépin. Session D2: Physics of **superconducting materials**, Abstract. Charge orders and charge uctuations have been ...
Physics of Cuprate Superconductors
Phase Diagram of the Cuprites
The Qcp under the Dome
Emergent Symmetry
Spin Flop Transition
Strange Metal
Plank and Regime for Resistivity
Memory Matrix
Roman Scattering
The pseudogap phase of the cuprate superconductors - The pseudogap phase of the cuprate superconductors by International Centre for Theoretical Sciences 3,203 views 9 years ago 58 minutes - Dates: Monday 12 Jan, 2015 - Friday 16 Jan, 2015 Description: Condensed matter systems display a wide variety of interesting ...
Harold Hwang "Superconductivity in infinite layer nickelates" - Harold Hwang "Superconductivity in infinite layer nickelates" by Stanford Physics 1,071 views 2 years ago 56 minutes - APPLIED PHYSICS/PHYSICS COLLOQUIUM (Technical difficulties at start, audio improves at 4:45) Tuesday, November 2, 2021 ...
Mutual Inductance
Cuprate Landscape
Magnetic Excitation Spectrum
Cuprate Phase Diagram
Locating the Missing Superconducting Electrons in the Overdoped Cuprates... ¸ Peter Armitage - Locating the Missing Superconducting Electrons in the Overdoped Cuprates... ¸ Peter Armitage by Kavli Institute for Theoretical Physics 270 views 3 years ago 48 minutes - "Locating the Missing **Superconducting**, Electrons in the Overdoped **Cuprates**, (and cyclotron resonance!)" This talk was recorded ...
Intro
The puzzle of the missing superconducting electrons in overdoped cuprates
Time Domain THz Spectroscopy
Residual and normal state real conductivity
Expectations for dirty d-wave
Radiation induced disorder/defects
Low-T uncondensed carrier conductivity
Superfluid phase stiffness
How does cyclotron resonance mass compare with ARPES?
Cyclotron resonance as a function of field
Steven Kivelson (Stanford) High-Tc superconductivity after 1/3 of 100 years @Harvard CMSA 12/17/2020 - Steven Kivelson (Stanford) High-Tc superconductivity after 1/3 of 100 years @Harvard CMSA 12/17/2020 by Juven Wang 3,328 views Streamed 3 years ago 1 hour, 52 minutes - 12/17/2020 Steven Kivelson (Stanford University) Title: What do we know about the essential physics of high-temperature ...
Intro
Keyboard shortcut
Welcome
What has been understood
Last words on the cuprates
State of the field paper
Antiferromagnetic insulator
Superconductivity
Unconventional superconductivity
Twostep normalization
Hubbard phase diagram
Discussion
Phase ordering determines Tc
Superfluid density
The boomerang effect
Tc vs superfluid density

Experimental facts
Phase diagram
Steven Kivelson | Superconductivity and Quantum Mechanics at the Macro-Scale - 2 of 2 - Steven Kivelson | Superconductivity and Quantum Mechanics at the Macro-Scale - 2 of 2 by Stanford Institute for Theoretical Physics 43,808 views 7 years ago 1 hour, 55 minutes - Professor Steven Kivelson of the Stanford Institute for Theoretical Physics (SITP) introduces the physics of supercondictivity and ...
The Search for Chiral Superconductors, covering Magnetism & Possible Weyl Superconductivity in UTe2 - The Search for Chiral Superconductors, covering Magnetism & Possible Weyl Superconductivity in UTe2 by Condensed Matter Physics In the City 967 views 2 years ago 1 hour, 27 minutes - Aharon Kapitulnik Department of Applied Physics, Stanford University Abstract: A Chiral **superconductor**, is an **unconventional**, ...
Experimental Search for Chiral Superconductors
Symmetry of pairs of identical electrons
Most general order parameter
Symmetries and Symmetry Breaking
The superconducting gap function
Topological Insulators and Superconductors
Types of Topological Superconductors
If Time Reversal Symmetry is Broken...
Light-waves and Time-Reversal Symmetry
Interaction of light with TRSB material
Theory of Kerr Effect in TRSB Superconductors
Estimate of size of Kerr effect at near-IR frequencie
Searches for Broken Time Reversal Symmetry TRS
Measurements with Zero-Area Sagnac Magnetome
Simple Measurement: The itinerant ferromagnet SRL
Heavy Fermions in one slide
Hallmarks of heavy fermions
Some initial considerations
Preferred symmetry: E
Kerr effect measurements on UPI
A Ferromagnetic Quantum Critical Point?
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