

## **What is Scopus? [www.scopus.com](http://www.scopus.com)**

**Largest abstract & citation database of curated international peer-reviewed literature**

- 22 000 peer-reviewed journals
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- 120 000 books (with 10 000 added/year)
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- 6.4 million conf papers from proceedings & jrnl
- 350 million scientific web pages indexed by Scirus
- 25.2 million patent records
- “Articles-in-Press” from >3850 journals

## Searching for a topic

Use the "Document search" tab (default)

The screenshot shows the Scopus search interface. At the top, there is a navigation bar with 'Scopus' on the left and 'Search Sources Alerts Lists Help ScVal Register Login' on the right. Below this is a dark blue header with 'Document search' on the left and 'Compare sources' on the right. Underneath, there are tabs for 'Documents', 'Authors', 'Affiliations', and 'Advanced'. The 'Documents' tab is selected. The search area contains a search bar with the text 'superconductivity AND "broken symmetry"'. Below the search bar, there are three rows of search criteria, each with an 'AND' operator and a search input field. At the bottom right, there is a 'Reset form' button and a 'Search Q' button. A red arrow points from the text 'Use the "Document search" tab (default)' to the 'Document search' tab in the header.

## Searching for a topic

Type in key words

This screenshot is identical to the one above, showing the Scopus search interface. However, a red arrow points from the text 'Type in key words' to the search bar containing the text 'superconductivity AND "broken symmetry"'. The 'Document search' tab is also highlighted in the header.

## Searching for a topic

Use Boolean operators to add or narrow terms, or add more search fields

The screenshot shows the Scopus Document search interface. The search bar contains the query "superconductivity AND 'broken symmetry'". Below the search bar, there are three search fields, each with a dropdown menu set to "AND" and a search type dropdown set to "Article title, Abstract, Keywords". A red arrow points from the text "Use Boolean operators to add or narrow terms, or add more search fields" to the "AND" dropdown menu. Another red arrow points from the text "Or use the 'add field' button" to the "+" button next to the search type dropdown. The interface also includes a "Limit" button and a "Search Q" button.

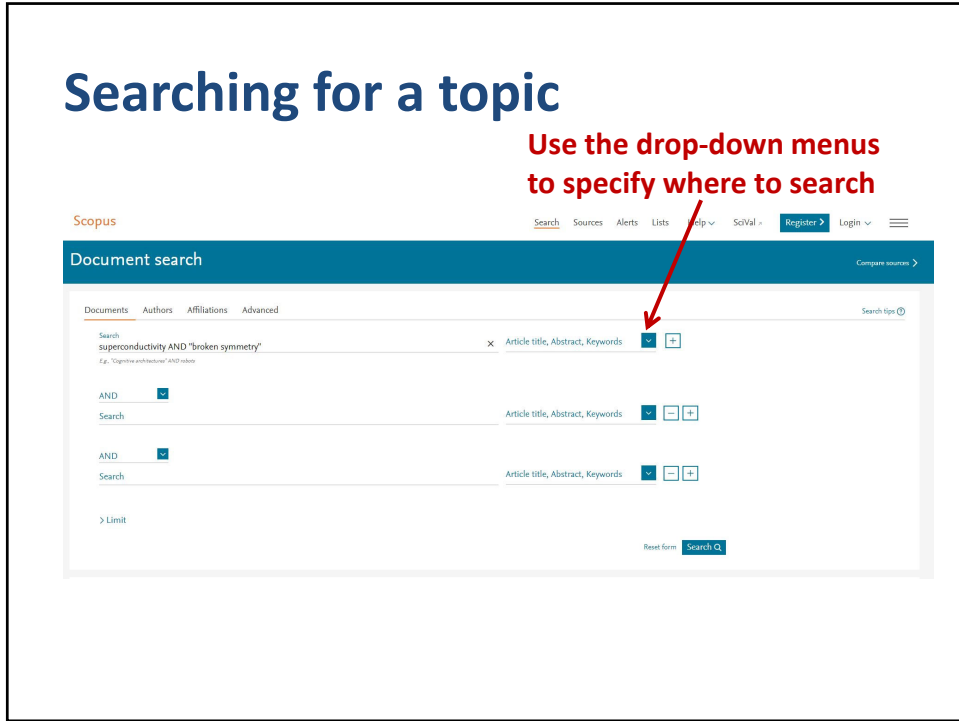
## Searching for a topic

Use quotation marks to search for exact phrases

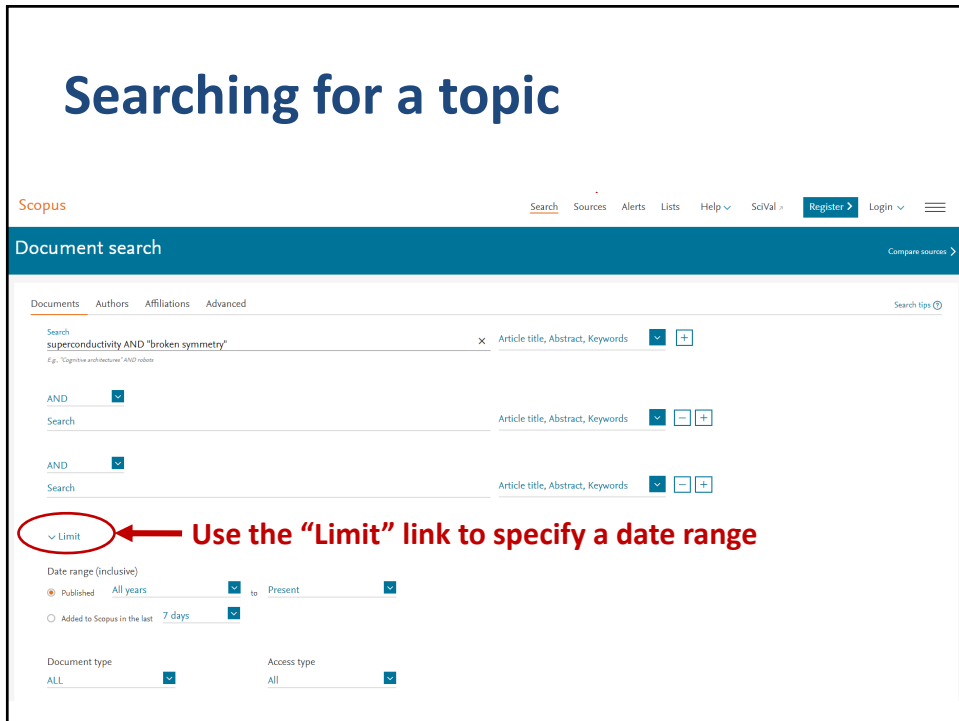
The screenshot shows the Scopus Document search interface. The search bar contains the query "superconductivity AND 'broken symmetry'". A red arrow points from the text "Use quotation marks to search for exact phrases" to the quotation marks around "broken symmetry" in the search bar. The interface also includes a "Limit" button and a "Search Q" button.

## Searching for a topic

Use the drop-down menus to specify where to search



## Searching for a topic



## Searching for a topic

The screenshot shows the Scopus search interface. The search query is "superconductivity AND 'broken symmetry'". Below the search bar, there are three "AND" search boxes. At the bottom left, there is a "Limit" link circled in red. Red arrows point from this link to the "Date range (inclusive)" section, which has "Published" selected and "All years" to "Present" chosen. Another red arrow points from the "Limit" link to the "Document type" and "Access type" sections, both of which are currently set to "ALL".

**Use the "Limit" link to specify a date range**  
**or document or access type (open access)**

## Results can be refined by many search parameters

The screenshot shows the search results page for the same query, displaying 164 document results. On the left side, there is a "Refine results" panel with three main sections: "Access type", "Year", and "Author name". Red arrows point from the "Limit or Exclude" link in the "Refine results" panel to the "Access type" section, which has "Open Access" selected. Another red arrow points from the "Limit or Exclude" link to the "Year" section, which has "2018" selected. A third red arrow points from the "Limit or Exclude" link to the "Author name" section, which has "Eisaki, H." selected. The main results area shows a table of search results with columns for Document title, Authors, Year, Source, and Cited by.

Document title	Authors	Year	Source	Cited by
1 Evidence of cosmic strings by the observation of the alignment of quasar polarization axes on Mpc scale	Slagter, R.J.	2018	International Journal of Modern Physics D 27(9),1850094	0
2 Quantum Multicriticality near the Dirac-Semimetal to Band-Insulator Critical Point in Two Dimensions: A Controlled Ascent from One Dimension	Roy, B., Foster, M.S.	2018	Physical Review X 8(1),011049	2
3 Two-stage multipolar ordering in PVTAl2O Kondo materials	Freyer, F., Atig, J., Lee, S., (...), Trebst, S., Kim, Y.B.	2018	Physical Review B 97(11),115111	0
4 Magnetic and Nematic Orders of the Two-Dimensional Electron Gas at Oside(111) Surfaces and Interfaces	Boudjada, N., Wachtel, G., Paramakanti, A.	2018	Physical Review Letters 120(9),096902	2

## Results can be automatically analyzed by clicking the link

The screenshot shows the Scopus search results page for the query "TITLE-ABS-KEY ( superconductivity AND broken symmetry)". The page displays 164 document results. A red arrow points to the "Analyze search results" link in the top navigation bar. Below the search bar, there are options to refine results by access type, year, and author name. The main results table lists four documents with their titles, authors, years, sources, and citation counts.

Document title	Authors	Year	Source	Cited by
1 Evidence of cosmic strings by the observation of the alignment of quasar polarization axes on Mpc scale	Slagter, R.J.	2018	International Journal of Modern Physics D 27(9),1850094	0
2 Quantum Multicriticality near the Dirac-Semimetal to Band-Insulator Critical Point in Two Dimensions: A Controlled Ascent from One Dimension	Roy, B., Foster, M.S.	2018	Physical Review X 8(1),011049	2
3 Two-stage multipolar ordering in PnTZA20 Kondo materials	Freije, F., Abig, J., Lee, S., (...), Trebst, S., Kim, Y.B.	2018	Physical Review B 97(11),115111	0
4 Magnetic and Nematic Orders of the Two-Dimensional Electron Gas at Oxide (111) Surfaces and Interfaces	Boudjada, N., Wachtel, G., Paramakanti, A.	2018	Physical Review Letters 120(8),086802	2

## And Scopus will analyze the results in many different ways

The screenshot shows the Scopus analysis tools for the same search results. The main analysis is "by affiliation", which is a horizontal bar chart showing the number of documents for each affiliation. Other analysis tools are shown in a grid below, including "by year", "by source", "by author", "by country", "by doc type", and "by subject".

Affiliation	Documents
Broadband National Laboratory	10
University of Tokyo	8
Los Alamos National Laboratory	7
Stanford University	7
National Institute of Advanced Industrial Science and Technology	7
University of Alabama-Montgomery	6
University of Toronto	6
Chinese Academy of Sciences	5
Joint Institute for Nuclear Research, Dubna	5

# Click on the title in the "results" list

The screenshot shows the Scopus search results page. The search criteria are "TITLE-ABS-KEY (superconductivity AND broken symmetry)". The results list contains two entries. The first entry, "Evidence of cosmic strings by the observation of the alignment of quasar polarization axes on Mpc scale" by Sluiter, R.J., is circled in red. The second entry is "Quantum Multicriticality near the Dirac-Semimetal to Band-Insulator Critical Point in Two Dimensions: A Controlled Ascent from One Dimension" by Roy, B., Foster, M.S.

# Abstract, metrics, citing docs, related docs, keywords, all references

The screenshot shows the document details page for the article "Quantum Multicriticality near the Dirac-Semimetal to Band-Insulator Critical Point in Two Dimensions: A Controlled Ascent from One Dimension" by Roy, B., Foster, M.S.P. The page includes the abstract, metrics (2 citations in Scopus, 4.92 field-weighted citation impact), a list of citing documents (2), related documents, and indexed keywords. A red arrow points to the "link for citing docs" section.

scroll down for all 107 refs ↓

# You can also access the full text for most papers

Scopus Search Sources Alerts Lists Help v ScVal v Register Login v

## Document details

< Back to results | < Previous 2 of 144 Next >

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Physical Review X Open Access  
Volume 8, Issue 1, 26 March 2018, Article number 011049

### Quantum Multicriticality near the Dirac-Semimetal to Band-Insulator Critical Point in Two Dimensions: A Controlled Ascent from One Dimension

(Article) (Open Access)  
Roy, B.<sup>1</sup>, Foster, M.S.<sup>1,2</sup>

<sup>1</sup>Department of Physics and Astronomy, Rice University, Houston, TX 77005, United States  
<sup>2</sup>Rice Center for Quantum Materials, Rice University, Houston, TX 77005, United States

Abstract

We compute the effects of generic short-range interactions on gapless electrons residing at the quantum critical point separating a two-dimensional Dirac semimetal and a symmetry-preserving band insulator. The electronic dispersion at this critical point is anisotropic ( $E_k = \pm \sqrt{v^2 k_x^2 + W^2 k_y^2}$  with  $n=2$ ), which results in unconventional scaling of thermodynamic and transport quantities. Because of the vanishing density of states ( $\rho(E) \sim |E|^{n-1}$ ), this anisotropic semimetal (ASM) is stable against weak short-range interactions. However, for stronger interactions, the direct Dirac-semimetal to band-insulator transition can either (i) become a fluctuation-driven first-order transition (although unlikely in a particular microscopic model considered here, the anisotropic honeycomb lattice extended Hubbard model) or (ii) get avoided by an intervening broken-symmetry phase. We perform a controlled renormalization group analysis with the small parameter  $\epsilon = 1/n$ , augmented with a  $1/n$  expansion (parametrically suppressing quantum fluctuations in the higher dimension) by perturbing away from the one-dimensional limit, realized by setting  $\epsilon = 0$  and  $n \rightarrow \infty$ . We identify charge density wave (CDW), antiferromagnet (AFM), and singlet s-wave superconductivity as the three dominant candidates for broken symmetry. The onset of any such order ( $\sim \epsilon$ ) takes place through a continuous quantum phase transition across an interacting multicritical point, where the ordered phase, band insulator, Dirac, and anisotropic semimetal meet. We also present the phase diagram of an extended Hubbard model for the ASM, obtained via the controlled deformation of its counterpart in one dimension. The latter displays spin-charge separation and instabilities to CDW, spin density wave, and Luther-Emery liquid phases at arbitrarily weak coupling. The spin density wave and Luther-Emery liquid phases deform into pseudospin SU(2)-symmetric quantum critical points separating the ASM from the AFM and superconducting orders, respectively. Our phase diagram shows an intriguing interplay among CDW, AFM, and s-wave paired states that can be germane for a uniaxially strained optical honeycomb lattice for ultracold fermion atoms, or the organic compound  $\text{Gd}(\text{BEDT-TTF})_2$ . © 2018 authors. Published by the American Physical Society.

Reprints Database Information  
View Comments

Indexed keywords  
Engineering controlled terms: Anisotropy Charge density Charge density wave Corundum Density optical Honeycomb structures Hubbard model Metalloid Optical lattices Phase diagrams Quantum electronics Separation Shear waves Spin density waves Statistical mechanics

Metrics  
269 Citations in Scopus  
4.92 Field-Weighted Citation Impact

PluX Metrics  
Deep, Capture, Monitor, Social Media and Custom beyond Scopus

Cited by 2 documents  
Phase transition with trivial quantum criticality in an anisotropic Weyl semimetal  
Lu, X., Wang, J.-R., Liu, G.-Z. (2018) Physical Review B  
Itinerant quantum multicriticality of two-dimensional Dirac fermions  
Roy, B., Goswami, P., Jun62, V. (2018) Physical Review B  
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Related documents  
Itinerant quantum multicriticality of two-dimensional Dirac fermions  
Roy, B., Goswami, P., Jun62, V. (2018) Physical Review B  
Emergent Non-Fermi-Liquid at the Quantum Critical Point of a Topological Phase Transition in Two Dimensions

# Voilà!

SAPS physics Journals Help/Feedback Journal, vol, page, DOI, etc.

## PHYSICAL REVIEW X

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Open Access

### Quantum Multicriticality near the Dirac-Semimetal to Band-Insulator Critical Point in Two Dimensions: A Controlled Ascent from One Dimension

Bitan Roy and Matthew S. Foster  
Phys. Rev. X **8**, 011049 – Published 26 March 2018

Article References Citing Articles (2) PDF HTML Export Citation

ABSTRACT

We compute the effects of generic short-range interactions on gapless electrons residing at the quantum critical point separating a two-dimensional Dirac semimetal and a symmetry-preserving band insulator. The electronic dispersion at this critical point is anisotropic ( $E_k = \pm \sqrt{v^2 k_x^2 + W^2 k_y^2}$  with  $n = 2$ ), which results in unconventional scaling of thermodynamic and transport quantities. Because of the vanishing density of states ( $\rho(E) \sim |E|^{n-1}$ ), this anisotropic semimetal (ASM) is stable against weak short-range interactions. However, for stronger interactions, the direct Dirac-semimetal to band-insulator transition can either (i) become a fluctuation-driven first-order transition (although unlikely in a particular microscopic model considered here, the anisotropic honeycomb lattice extended Hubbard model) or (ii) get avoided by an intervening broken-symmetry phase. We perform a controlled renormalization group analysis with the small parameter  $\epsilon = 1/n$ , augmented with a  $1/n$  expansion (parametrically suppressing quantum fluctuations in the higher dimension) by perturbing away from the one-dimensional limit, realized by setting  $\epsilon = 0$  and  $n \rightarrow \infty$ . We identify charge density wave (CDW),

Issue  
Vol. 8, Iss. 1 — January - March 2018

Subject Areas  
Condensed Matter Physics  
Strongly Correlated Materials

Check for updates



## You can also search by author

Use the "Author search"

The screenshot shows the Scopus Author search page. At the top, there is a navigation bar with 'Scopus' on the left and 'Search', 'Sources', 'Alerts', 'Lists', 'Help', 'SciVal', 'Register', and 'Login' on the right. Below this is a blue header for 'Author search' with a 'Compare sources' link. A blue information box explains the Scopus Author Identifier algorithm. Below the information box are four tabs: 'Documents', 'Authors', 'Affiliations', and 'Advanced'. The 'Authors' tab is circled in red, and a red arrow points from the text 'Use the "Author search"' to it. Below the tabs are three search fields: 'Author last name' (with example 'e.g. Smith'), 'Author first name' (with example 'e.g. J.L.'), and 'Affiliation' (with example 'e.g. University of Toronto'). There is a 'Search Q' button to the right of the 'Affiliation' field. At the bottom, there is an 'ORCID' field with a 'Search Q' button.

## You can also search by author

Type in author surname and first name or initials

This screenshot is identical to the one above, but with the search fields populated. The 'Author last name' field contains 'Fradkin' and the 'Author first name' field contains 'Eduardo'. Both fields have a small 'x' icon to their right. A red arrow points from the text 'Type in author surname and first name or initials' to the 'Fradkin' entry in the 'Author last name' field.

## You can also search by author

Turn on "exact matches" to narrow search

The screenshot shows the Scopus Author search page. At the top, there is a navigation bar with 'Search', 'Sources', 'Alerts', 'Lists', 'Help', 'SciVal', 'Register', and 'Login'. Below this is a blue header for 'Author search' with a 'Compare sources' link. A blue information box explains the Scopus Author Identifier algorithm. The search form has tabs for 'Documents', 'Authors', 'Affiliations', and 'Advanced'. The 'Authors' tab is active. It contains two input fields: 'Author last name' with 'Fradkin' and 'Author first name' with 'Eduardo'. Below these is an 'Affiliation' field with a placeholder 'eg. University of Toronto'. A checkbox labeled 'Show exact matches only' is checked. A 'Search Q' button is to the right. At the bottom, there is an 'ORCID' field with another 'Search Q' button. A red arrow points from the text 'Turn on "exact matches" to narrow search' to the checked checkbox.

## You can also search by author

Leave "Affiliation" blank for more results

This screenshot is identical to the one above, showing the Scopus Author search page. However, a red arrow points from the text 'Leave "Affiliation" blank for more results' to the 'Affiliation' input field, which is currently empty. The 'Show exact matches only' checkbox is still checked.

## Select the correct author...

Scopus Search Sources Alerts Lists Help SciVal Register Login

2 author results About Scopus Author Identifier

Author last name "Fradkin", Author first name "Eduardo"

Show exact matches only

Refine results

Limit to Exclude

Source title

- Journal Of Statistical Mechanics: Theory And Experiment (2)
- Advanced Materials (1)
- Annalen Der Physik (1)
- Annals Of Physics (1)
- Annual Review Of Condensed Matter Physics (1)

View more

Sort on: Document count (high-low)

All  Show documents  Show citation overview  Request to merge authors

Author	Documents	Subject area	Affiliation	City	Country/Territory
1 Fradkin, Eduardo H. Fradkin, E. Fradkin, E. H. Fradkin, Eduardo	225	Physics and Astronomy ; Materials Science ; Mathematics ; ...	University of Illinois at Urbana-Champaign	Urbana	United States
2 Fradkin, Eduardo	1	Mathematics ; Physics and Astronomy ; Decision Sciences ; ...	University of Illinois at Urbana-Champaign	Urbana	United States

and click on "Show documents"

## And we get Eduardo's 226 papers

Scopus Search Sources Alerts Lists Help SciVal Register Login

226 document results View secondary documents

AU-ID ("Fradkin, Eduardo H." 35498145900) OR AU-ID ("Fradkin, Eduardo" 57203044407)

Edit Save Set alert Set feed

Search within results...

Analyze search results Show all abstracts Sort on: Date (newest)

All  Export  Download  View citation overview  View cited by  Add to List

Refine results

Limit to Exclude

Access type

- Open Access (2)
- Other (224)

Year

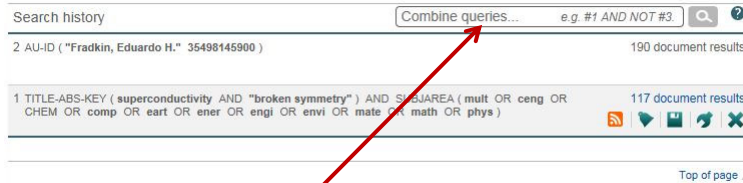
- 2018 (6)
- 2017 (14)
- 2016 (9)

Document title	Authors	Year	Source	Cited by
1 Scrambling in the quantum Lifshitz model	Plamadeala, E., Fradkin, E.	2018	Journal of Statistical Mechanics: Theory and Experiment 2018(10):063102	0
2 Pair density waves in superconducting vortex halos	Wang, Y., Edkins, S.D., Hamidian, M.H., Fradkin, E., Kivelson, S.A.	2018	Physical Review B 97(17):174510	5

which can also be sorted in a variety of ways



## Scopus saves up to 50 searches per session automatically



which can be combined

## Free registration gives access to additional services

A screenshot of the Scopus registration page. The top navigation bar includes 'Search', 'Sources', 'Alerts', 'Lists', 'Help', 'SciVal', and a 'Register' button circled in red. Below the navigation bar is a blue header with the word 'Register'. The main content area contains a registration form with the following sections: 'Your details' (First name, Family name), 'E-mail and password' (E-mail address, Password), and a 'Register' button. There are also checkboxes for 'Add profile details', 'I wish to receive information from Elsevier B.V. and its affiliates concerning their products and services', and 'I have read and understood the Registered user agreement and agree to be bound by all of its terms'. A 'Privacy policy' link is visible in the top right of the form area.

Automatic search alerts

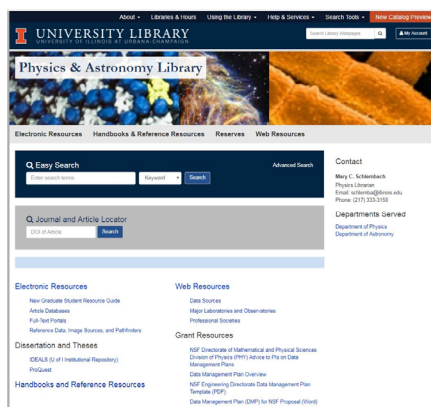
Automatic citation alerts

Saved searches

## Want to use Scopus\* from home?

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<http://www.library.illinois.edu/phx/>



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