Binghai Yan

Associate Professor
Condensed Matter Physics
Weizmann Institute of Science, Israel

A: Personal details

Birth:	Oct-1981 in China
Citizenship:	Chinese
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See also:	Google Scholar Citations & ResearcherID: D-2404-2013

B: Education

2003	B.sc. Physics	Xi'an Jiaotong University, Xi'an, China Department of Physics
2008	PhD. in Physics	Tsinghua University, Beijing China Institute for Advanced Study (Prof. Binglin Gu and Prof. Wenhui Duan) Thesis: First-principles study for 1D semiconductor nanostructures

C: Employment History

2008 - 2010	Humboldt postdoc	University of Bremen (Prof. Thomas Frauenheim), Germany
2010 - 2011	Postdoc	Stanford University (Prof. Shou-Cheng Zhang), US
2011 - 2012	Humboldt postdoc	University of Bremen (Prof. Thomas Frauenheim), Germany
2012 - 2017	Group leader	MPI for Chemical Physics of Solids (Prof. Claudia Felser) & MPI for Physics of Complex Systems (joint), Dresden, Germany
Since Feb-2017	Senior Scientist	Weizmann Institute of Science, Israel

F: Scholarships and Awards

2008 Humboldt Fellowship by Humboldt Foundation in Germany
2013 ARCHES Prize by BMBF and Minerva Foundation, Germany
2017 IPS prize for Young Scientist by the Israel Physics Society (IPS), Israel
2019 Morris L. Levinson Prize in Physics by the Weizmann Institute of Science

G: Research Support

2014 - 2018	ARCHES Prize, Minerva Stiftung and BMBF, Germany Title: Topological superconducting materials Role: Co-PI.
2016 - 2017	DFG-SPP "Topological Insulator" (SPP-1666 / YA 328/5-1) Title: Topological Weyl Semimetals for Spintronic Devices Role: Co-PI.
2017 - 2019	German Israel Foundation (GIF Grant no. I-1364-303.7/2016) Title: Computation and Visualization of Unexplored Topological Phases Role: Co-PI.
2018 - 2022	Max Planck Lab on "Topological materials". Role: PI.
2019-2023	ERC-consolidator (NonlinearTopo -No. 815869) Title: Nonlinear Optical and Electrical Phenomena in Topological Semimetals Role: PI.

I: Organizing Workshops and Journal Issues

2012 The CECAM workshop - Topological Materials, University of Bremen, Germany
Organizers: B. Yan, C. Felser, Z. Fang, W. Hanke, T. Frauenheim

2013 Focus Issue on Topological Insulators - From Materials Design to Reality
in Phys. Status Solidi RRL
Guest Editors: C. Felser, S.-C. Zhang, B. Yan

2016 Weizmann - Max Planck workshop, Rehovot, Israel
Organizers: N. Avraham, H. Beidenkopf, C. Felser and B. Yan

2016 Young Research Leaders Workshop: New Paradigms in Dirac-Weyl Nanoelectronics, Germany
Organizers: M. Ali and B. Yan

2017 Young Research Leaders Workshop: Chemistry meets Physics in Topology, Germany
Organizers: B. Yan, L. Schoop

2017 Weizmann - Max Planck workshop, Dresden, Germany
Organizers: N. Avraham, H. Beidenkopf, C. Felser and B. Yan

2017 Topological semimetals and beyond, Rehovot, Israel
Organizers: N. Avraham, H. Beidenkopf and B. Yan

2018 Weizmann - Max Planck workshop, Jerusalem, Israel
Organizers: N. Avraham, H. Beidenkopf, C. Felser and B. Yan

2018 Workshop for Young Research Leaders: Topological Matter
Organizers: R. Queiroz, P. Moll and B. Yan

2019 Weizmann - Max Planck workshop, Dresden, Germany
Organizers: N. Avraham, H. Beidenkopf, C. Felser and B. Yan

2019 Topology and Frustration in Quantum Materials
Organizers: B. Yan, Z. Liu, J. W. Mei

J: Invited Talks in Conferences

2013.06 The crossover between 2D and 3D in layered topological insulators
CECAM workshop: Novel 2D materials, Bremen, Germany
2013.07 Topological insulators
ASPIMATT summer school, MPI-CPfS, Dresden, Germany
2013.07 Heusler compounds, spin orbit coupling, topological insulators and new effects
Worshop Spin Orbit Entanglement, Dresden, Germany
2013.09 Heusler compounds, topological insulators and new effects
Worshop Electronic properties of spin-orbit driven oxides, Dresden, Germany
2015.06 Topological insulator and topological metal
Symposium on "New Concept Spintronics Devices", York, UK
2015.07 Topological Metals: from the Shockley states to topological states
Workshop of Advances in Nanoscience Applications, University of Cambridge, UK
2015.07 Topological insulators and topological metals
TRR80 Summer School, Chiemsee, Germany
2015.10 Topological Weyl Semimetals
Workshop Beyong CMOS, Castle Ringberg, Germany
2016.03 The type-II Weyl semimetal in MoTe2
Weizmann-Max Planck workshop, Weizmann Institute, Israel
2016.03 Topological surface Fermi arcs in Weyl Semi-Metal materials
DPG Spring Meeting, Regensburg, Germany
2016.04 Topological surface states and chiral magneto-transport in TaAs-type of Weyl semimetals
Workshop "The 2nd Floating Zone technique", IFW Dresden, Germany
2016.06 Giant intrinsic spin Hall effect in the Weyl Semimetals
Young Research Leaders Group Workshop, Mainz, Germany
2016.06 Discovery of a new type of topological Weyl semimetal in MoTe2
CECAM-Workshop "Tailor-made 2D-materials and functional devices", Bremen, Germany
2016.07 Large magnetoresistance and the Fermi surface topology of the NbP-type Weyl semimetals
22nd Conference on High Magnetic Fields in Semiconductor Physics, Sapporo-shi, Japan
2016.07 Surface Fermi arcs and bulk spin currents in the Weyl semimetals
New Trends in Topological Insulators 2016 (NTTI 2016) and
17th International Conference on Narrow Gap Semiconductors (NGS17), Wuerzburg, Germany
2016.08 Spin orbit interaction; 2D and 3D topological insulators
Summer school on "Topological Matter States 2016", San Sebastian, Spain
2016.09 Surface Fermi arcs and bulk spin transport in the Weyl SemiMetals
Condensed Matter in Groningen (CMD26), Groningen, Netherland
2016.09 Topological Fermi arcs of Weyl Semimetal Materials: from the bulk to the surface
Yukawa Institute for Theoretical Physics(YITP) international workshop [BEC2016], Kyoto, Japan
2016.12 AFM Weyl SemiMetal Materials
SRitp Workshop: Strongly Correlated Matter: Present and Future, Weizmann Institute, Israel
2017.02 Dirac nodal lines and induced spin Hall effect in metallic rutile oxides
Young Research Leaders Group Workshop: Chemistry meets Physics in Topology, Germany
2017.03 Topological Weyl Semimetal Materials Surface Fermi Arcs and Bulk Spin Current
APS March Meeting, New Orleans, US
2017.06 Berry phase and spin current in chiral AFM Weyl Semimetals
2nd Weizmann - Max Planck Workshop, Dresden, Germany
2017.06 The type-II Weyl semimetal phase in MoTe2
2D and layered Materials, Ohio State University, USA

2017.06 Berry phase and spin current in chiral AFM Weyl Semimetals
3rd Conference on Condensed Matter Physics (CCMP-2017), Shanghai, China
2017.09 Berry phase and spin current in Weyl Semimetals
CECAM ab initio Spin-orbitronics, Montesilvano, Pescara (Italy)
2017.12 Topological Responses in Weyl semimetal Materials
Israel Physics Society Conference 2017, Haifa, Israel
2018.02 Topological materials with photocurrents generated by nonlinear optical effects
3rd Weizmann - Max Planck workshop, Jerusalem, Israel
2018.05 Berry phase induced higher order responses in topological materials
Topological Matter & Quantum Computing, Kavli Institute of Science, Beijing, China
2018.07 Nonlinear optical and electrical phenomena in topological semimetals
Localization, Interactions and Superconductivity, Landau Institute, Russia
2019.05 Topological Materials: Berry phase and anomalous transport
4th Weizmann - Max Planck workshop, Dresden, Germany
2019.06 Anomalous charge and heat transport in Weyl semimetals
Workshop on "Topology and Frustration", Tsinghua Uni., Beijing, China
2019.06 Topology, Anomalous charge and heat transport
Workshop in memory of Shoucheng Zhang's Physics, Tsinghua Uni., China
2020.01 Insights from magnetic Weyl semimetals
Total Energy and Force methods 2020, San Sebastian, Spain
2020.03 Insights from magnetic Weyl semimetals: the Berry phase and beyond
APS March Meeting 2020 (invited), virtual.

K: Talks in Institutes

2011.04 Theoretical prediction of topological insulators: the TlBiSe2 family and the CeOs4Sb12 family
University of Wuerzburg, Wuerzburg, Germany
2012.11 Topological insulator materials
Lorentz Center, Leiden University, Netherland
2013.04 Strong and weak topological insulators in the honeycomb lattice
EPFL, Lausanne, Switzerland
2014.02 Topological insulators from the perspective of chemistry
Weizmann Institute of Science, Israel
2014.06 Topological insulator materials with large energy-gap (Colloquium)
University of Wuerzburg, Germany
2014.08 Topological insulator materials in the honeycomb lattice
University of Duisburg-Essen, Germany
2015.02 Quantum Anomalous Hall Effects on the Novel Honeycomb Material Stanene
University of Mainz, Germany
2015.03 Topological insulators and topological metals
IBM Almaden Research Center, US
2015.03 Topological insulating states with maximized energy gap
Stanford University, US
2015.12 Topological surface stats and the chiral anomaly in Weyl semimetals
University of Wuerzburg, Germany
2016.01 Materials Design for topological quantum materials
Weizmann Institute of Science, Israel
2016.03 Materials Design for topological quantum materials
Stuttgart University, Stuttgart, Germany
2016.03 An introduction to topological Weyl semimetals
Max Planck Institute for microstructure physics, Halle, Germany
2016.05 Surface Fermi arcs and bulk chiral magneto-transport of the Weyl semimetals
Max-Planck-Institut fr Festkrperforschung, Stuttgart, Germany

2016.07 Surface Fermi arcs and bulk chiral magneto-transport of the TaAs family Weyl semimetals
Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany
2017.07 Berry phase and spin current in chiral AFM Weyl Semimetals
IASTU, Tsinghua University, Beijing, China
2017.08 Berry curvature monoples and dipoles in Weyl Semimetal mateirals
University of Pennsylvania (Penn), Philadelphia, PA, US
2017.08 Berry curvature monoples and dipoles in Weyl Semimetal mateirals
Rutgers, The State University of New Jersey (Rutgers), Piscataway, NJ, USA
2017.08 Berry curvature dipoles and nonlinear optical response in Weyl Semimetal materials
Pennsylvania State University (PSU), College Park, PA, USA
2017.08 Berry phase and spin current in Weyl Semimetals
Carnegie Mellon University (CMU), Pittsburg, PA, USA
2017.09 Berry curvature dipole in Weyl Semimetal materials
Massachusetts Institute of Technology (MIT), Cambridge, MA, USA
2017.09 Berry phase and spin current in Weyl Semimetals
Harvard University, Cambridge, MA, USA
2017.10 Berry curvature dipole in Weyl Semimetals
Peking University, Beijing, China
2017.10 Nonlinear anomalous Hall effect in Weyl Semimetals
Tsinghua University, Beijing, China
2017.10 Topological insulators and topological semimetals(Colloquium)
Stuttgart University, Stuttgart, Germany
2017.12 Weyl Semimetal Materials: from Bulk to Surface (Colloquium)
Technion, Haifa, Israel
2017.12 Berry curvature dipole in Weyl materials
Max Planck Institute for the Structure and Dynamics of Matter, Hamburg, Germany
2018.05 Topological materials and topological responses
Bar-Ilan University, Ramat-Gan, Israel
2018.10 Topological Materials: Berry phase, Surface States and More
Hebrew University in Jerusalem, Israel
2018.11 Discovery of Topological Materials in a Fusion of Physics and Chemistry (Colloquium)
Weizmann Institute of Science, Israel
2019.02 Topological Materials: Berry phase and anomalous transport
Pennsylvania State University, US
2019.03 Topological Materials: Berry phase and anomalous transport
University of Pennsylvania, US
2019.03 Topological Materials
Stony Brook University, US
2019.05 Topological states and topological materials
Xi'an Jiaotong University, Xi'an, China
2019.06 Topological Quantum States and Topological Materials
Tsinghua University & Beijing Normal University, China
2019.06 Anomalous charge and heat transport in Weyl semimetals
The University of Tokyo & Tokyo Institute of Technology, Japan