

Sahil Gulania

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Personal Information

Name **Sahil Gulania.**
Nationality **Indian.**
Languages **Hindi(native), English.**
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Education

2016–present **Doctor of Philosophy, Chemistry**, *University of Southern California (USC)*,
Los Angeles, USA.
Thesis title - New electronic structure methods for electronically excited and open-shell
species within the equation-of-motion coupled-cluster framework
Tentative defense date - March 2021

2011–2016 **Integrated Master of Science (Chemistry)**, *National Institute of Science
Education and Research (NISER)*, Bhubaneswar, India.
Master's thesis title - Implementation of stationary point search and intrinsic reaction
coordinate following algorithms for force modified potential energy surface
CGPA - 8.6/10

Teaching Experience

2016, Fall **Leading lab sections in General Chemistry (105a).**
2017, Spring **Teaching assistant in Advanced General Chemistry (115b).**

Scholarships and Academic Awards

- Dornsife Graduate School Fellowship for 5-years of study at USC.
- Innovation in Science Pursuit for Inspired Research (INSPIRE) granted by Ministry of Human Resource Development (MHRD) for all 5-years of study, INDIA
- Scholarship for Higher Education from CBSE (ISPIRE) for being in top 1 % in Central Board of Secondary Education (Class XII), INDIA

Publications

- 1 **Limitations of Hartree-Fock with quantum resources.**
S. Gulania, and J. D. Whitfield
arXiv:2007.09806, **2020**
- 2 **Domain-specific compilers for dynamic simulations of quantum materials on quantum computers.**
L. Bassman, S. Gulania, C. Powers, R. Li, T. Linker, K. Liu, T. K. Satish Kumar, Rajiv K. Kalia, A. Nakano and P. Vashishta
arXiv:2004.07418, **2020**
- 3 **The quest to uncover the nature of benzonitrile anion.**
S. Gulania, T-C. Jagau, A. Sanov, and A. I. Krylov
Phys. Chem. Chem. Phys. **2020**, *22*, 5002 – 5010
- 4 **Two cycling centers in one molecule: Communication by through-bond interactions and entanglement of the unpaired electrons .**
M. Ivanov, S. Gulania, and A. I. Krylov
J. Phys. Chem. Lett., **2020**, *11*, 1297 – 1304
- 5 **Young frames for quantum chemistry.**
S. Gulania and J. D. Whitfield
arXiv:1904.10469, **2019**
- 6 **EOM-CC guide to Fock-space travel: The C₂ edition.**
S. Gulania, T-C. Jagau and A. I. Krylov
Faraday Disc., **2019**, *217*, 514–532
- 7 **Bound and continuum-embedded states of cyanopolyne anions.**
W. Skomorowski, S. Gulania, and A. I. Krylov
Phys. Chem. Chem. Phys., **2018**, *20*, 4805-4817
- 8 **Channel branching ratios in CH₂CN⁻ photo detachment: Rotational structure and vibrational energy redistribution in auto-detachment.**
J. Lyle, O. Wedig, S. Gulania, A. I. Krylov, and R. Mabbs
J. Chem. Phys., **2017**, *147*, 234309

Presentation

Equation of motion - double electron attachment, Sanibel Symposium, St. Simons Island, GA. February 2020.

(Poster)

Benzonitrile: dipole bound state vs valence anion, Utah Workshop, Park City, UT. September 2019.

(Poster)

Dissociative Electron Attachment leading to Fock space traverse (C₂H → C₂ + H), Pacific Conference on Spectroscopy and Dynamics, San Diego. January 2019.

(Poster)

Dissociative electron attachment leading to excited C_2 anion in micro wave-activated CH_4/H_2 plasma, Gordon Research Conference, Stonehill College in Easton MA. July 2018.

(Poster)

Electronic structure of cyanopolyynes anions: A computational study of valence and dipole bound states, Pacific Conference on Spectroscopy and Dynamics, San Diego. January 2018.

(Poster)

Electronic Structure of negative Ions (CN^- and C_3N^-), SoCal TheoChem 2.0, University of California, Irvine. May 2017.

(Poster)

References

Dr. Anna Krylov

Gabilan Distinguished Professor in Science and Engineering and Professor of Chemistry

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Dr. Aiichiro Nakano

Professor of Computer Science, Physics and Astronomy, and Biological Sciences

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Dr. James Daniel Whitfield

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