ASIF EQUBAL

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RESEARCH INTERESTS

I am interested in understanding and manipulating electron and nuclear spins coupling interactions in a wide temperature regime, with potential applications in material characterization. I am also interested in nuclear hyperpolarization, remote sensing and quantum computing.

My three major research goals at present are: (1) NMR/EPR pulse sequence development (2) Electron spin choreography using pump-probe double resonance EPR (3) Electron-nuclear spin decoupling.

EXPERIENCE

University of California Santa Barbara, CA, USA — Jan 2017-
Postdoctoral Researcher
Advisor: Prof. Songi Han

Tata Institute of Fundamental Research, Hyderabad, India — Aug 2016-Dec 2016
Postdoctoral Researcher
Advisor: Prof. P. K. Madhu

EDUCATION

PhD — May 2013-August 2016
Aarhus University, iNANO, Denmark
Advisor: Prof. Niels Chr. Nielsen
Dissertation: Heteronuclear Spin Decoupling in Solid-State Magic-Angle-Spinning NMR
Awarded Best Molecular Spectroscopy Thesis in Denmark during 2015-2017

BS-MS — June 2008-May 2013
Indian Institute of Science Education & Research, Mohali, India
Major: Chemistry Minor: Physics and Biology

Master Thesis Research — Sep 2012-May 2013
Indian Institute of Science Education & Research Mohali, India.
Advisor: Prof. N Sathyamurthy
Thesis: Ab initio Investigation of Electronic Structure of Endohedral Fullerenes

Master Thesis Research — June 2011-August 2011
ETH Zurich, Switzerland
Advisor: Prof. Matthias Ernst
Thesis: Third Spin Assisted Dipolar Recoupling Experiments for Structural Elucidation of Proteins

OTHER RESEARCH EXPERIENCE

Heteronuclear Spin Recoupling and Decoupling — 2014-2016
Prof. P K Madhu, **TIFR**, Mumbai, India
Operator based Bimodal and Trimodal Floquet Theory — Feb 2014 & June 2015
Prof. Shimon Vega, Weizmann Institute of Science, Rehovot, Israel

PUBLICATIONS (BEST IN BLUE)

Journal Papers 24-Accepted https://orcid.org/0000-0001-8778-2444

1. Y. Li, **A Equbal**, T Tabassum, S Han, The journal of physical chemistry letters, just accepted, 2020.
2. **A Equbal**, K Tagami, S Han, Physical chemistry chemical physics 22, 13569-13579, 2020.
3. **A Equbal**, Y Li, T Tabassum, S Han, The journal of physical chemistry letters 11 (9), 3718-3723, 2020.
4. **A Equbal**, K Tagami, S Han, The journal of physical chemistry letters 10 (24), 7781-7788, 2020.
5. K Tagami, **A Equbal**, I Kaminker, B Kirtman, S Han, Solid state nuclear magnetic resonance 101, 12-20, 2019.
6. K Sharma, **A Equbal**, NC Nielsen, PK Madhu, The Journal of chemical physics 150 (14), 144201, 2019.
7. **A Equbal**, A Leavesley, SK Jain, S Han, The journal of physical chemistry letters 10 (3), 548-558, 2019.
8. Y Li, **A Equbal**, K Tagami, S Han, Chemical communications, 55, 7591-7594, 2019.
9. **A Equbal**, Y Li, A Leavesley, S Huang, S Rajca, A Rajca, S Han, The journal of physical chemistry letters 9 (9), 2175-2180, 2018.
10. SK Jain, TA Siaw, **A Equbal**, CB Wilson, I Kaminker, S Han, The journal of physical chemistry C 122 (10), 5578-5589, 2018.
11. A Lund, **A Equbal**, S Han, Physical chemistry chemical physics 20 (37), 23976-23987, 2018.
12. MG Jain, KN Sreedevi, **A Equbal**, PK Madhu, V Agarwal Journal of magnetic resonance 284, 59-65, 2017.
13. **A Equbal**, S Srinivasan, N Sathyamurthy, Journal of chemical sciences 129 (7), 911-917, 2017.
14. MG Jain, G Rajalakshmi, **A Equbal**, KR Mote, V Agarwal, PK Madhu, The journal of chemical physics 146 (24), 244201, 2017.
15. **A Equbal**, R Shankar, M Leskes, S Vega, NC Nielsen, PK Madhu, The journal of chemical physics 146 (10), 104202, 2017.
16. **A Equbal**, PK Madhu, BH Meier, NC Nielsen, M Ernst, V Agarwal, The journal of chemical physics 146 (8), 084202, 2017.
17. **A Equbal**, M Leskes, NC Nielsen, PK Madhu, S Vega, Journal of magnetic resonance 263, 55-64, 2016.
18. **A Equbal**, M Bjerring, K Sharma, PK Madhu, NC Nielsen, Chemical physics letters 644, 243-249, 2016.
19. **A Equbal**, K Basse, NC Nielsen, Physical chemistry chemical physics 18 (45), 30990-30997, 2016.
20. **A Equbal**, M Bjerring, PK Madhu, NC Nielsen, Chemical physics letters 635, 339-344, 2015.
21. **A Equbal**, M Bjerring, PK Madhu, NC Nielsen, The journal of chemical physics 142 (18), 184201, 2015.
22. **A Equbal**, S Paul, VS Mithu, PK Madhu, NC Nielsen, Journal of magnetic resonance 246, 104-109, 2014.
23. **A Equbal**, S Srinivasan, CN Ramachandran, N Sathyamurthy, chemical physics letters 610, 251-255, 2014.
24. **A Equbal**, S Paul, VS Mithu, JM Vinther, NC Nielsen, PK Madhu, Journal of magnetic resonance 244, 68-73, 2014.

CONFERENCES AND TALKS (SELECTED)

1. Technion University, Israel, Magnetic Resonance Seminar, January 26, 2014. (**Talk**)
2. 1st NMR meets Biology Conference, Goa, India, February 2014.
3. QUAINT Meet, Sandbjerg, Denmark, April 2014.
4. Winter School on Biomolecular NMR, Munich, Germany, November 2014.
5. 36th Danish NMR Meet, Lund, Sweden, January 2015.
6. 17th NMR Symposium, Amritsar, India, March 2015. **(Talk)**
7. COST, Hyperpolarized Magnetic Resonance, Egmond aan Zee, The Netherlands, 2015.
8. 2nd NMR meets Biology Conference, Kerala, India, January 2016. **(Tutorial)**
9. 57th ENC Conference, Pittsburgh, USA, April 2016.

10. 58th ENC Conference, Asilomar, California, USA, March 2017.
11. Weizmann Institute, Israel, Magnetic Resonance Seminar, May 13, 2018. (**Talk**)
12. Rocky Mountain Conference, Utah, USA, July 2018. **(Talk)**
13. 60th ENC Conference, Asilomar, California, USA, April 2019. **(Talk)**
14. 8th EFEPR School, Brno, Czech Republic, November 2019.
15. Intercontinental NMR seminar, (virtual) Meeting, May 2020. **(Talk)**
16. International EPR Society (virtual) Meeting, June 2020. **(Talk)**
17. Department of Physics, UW Madison, July 2020. **(Talk)**
18. Department of Chemistry, UC Berkley, August 2020. **(Talk)**
19. Global NMR Discussion Meeting (virtual), September 2020. **(Tutorial Talk)**

PROFESSIONAL SERVICE

Global NMR Discussion Meeting Organizer
Online NMR Webinar Meeting, May 2020-onwards
https://www.youtube.com/c/GlobalNMRDiscussionMeetings/about

International EPR Society virtual Meeting Co-Organizer
Online Zoom meeting, April 2020-onwards
https://ieprs.org/on-line-activities/

Reviewed Articles for:
Magnetic Resonance, PCCP

AWARDS AND FELLOWSHIPS

Shared-EPR network award for EPR School, Brno, Czech Republic.	2019
Shared-EPR network award for RMC conference, Utah, USA	2018
Danish Society Molecular Spectroscopy prize for Best PhD Thesis in Denmark	2017
Student travel grant award in 57th ENC conference, Pittsburgh, USA	2016
Best oral presentation in national magnetic resonance society (NMRS)	2015
IINSPIRE fellowship from Dept. of Science and Technology, Government of India	2008-2013
Indian national science academy fellowship, Government of India.	2011
National science talent search programme fellowship, Jharkhand Government, India.	2006

RESEARCH SKILLS

Programming skills: FORTRAN, Python, MatLab, Mathematica
Experimental skills: Ultra low temperature experiments, Static and rotating samples, Microwave and RF instrumentation
Theoretical skills: Quantum Mechanics, Analytical skills to solve time-dependent Hamiltonian

REFERENCES

1. Prof. Niels Chr. Nielsen, Aarhus University, Denmark
2. Prof. Songi Han, UC Santa Barbara, USA
3. Prof. Matthias Ernst, ETH Zurich, Switzerland
4. Prof. Shimon Vega, Weizmann Institute of Science, Israel
5. Prof. P K Madhu, TIFR, Hyderabad, India
6. Prof. Robert Griffin, MIT, USA

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