

# Pranjal Dhole (M.Sc.)



## Contact Information

Email:           University: [pranjal.dhole@inf.h-brs.de](mailto:pranjal.dhole@inf.h-brs.de)  
                       Personal:   [dhole.pranjal@gmail.com](mailto:dhole.pranjal@gmail.com)

Homepage: <https://pranjaldhole.github.io/>  
 GitHub:     <https://github.com/pranjaldhole>

## Work Experience

**Doctoral Researcher** [05.2015 - 11.2016]  
 Department of Behaviour and Brain Organization  
 Research Center caesar, Bonn

**Research Intern** [09.2015 - 04.2016]  
 Department of Behaviour and Brain Organization  
 Research Center caesar, Bonn

**Student Assistant** [08.2014 - 09.2015]  
 Bonn-Cologne Graduate School (BCGS) office, Bonn  
Main tasks: Organization of the intranet system, assistance in administrative tasks.

**Student Assistant** [11.2013 - 03.2014]  
 University of Bonn, Bonn  
Task: Preparation of lecture notes for course 'Advanced atomic, molecular and optical physics' taught by Prof. Dr. Michael Köhl at University of Bonn during WS2013-14.

## Education

**Master in Autonomous Systems** [03.2016 - present]  
 Hochschule Bonn-Rhein-Sieg, Sankt Augustin, Germany

**Master of Science in Physics** [10.2012 - 08.2015]  
 University of Bonn, Germany  
 CGPA: 1.8<sup>1</sup>

**Bachelor of Science in Physics, Mathematics and Chemistry (triple major)** [06.2009 - 05.2012]  
 Christ University, Bangalore, India  
 CGPA: 3.42<sup>2</sup>

**Higher Secondary School Certificate** [2007 - 2008]  
 Maharashtra State board, India

<sup>1</sup>The CGPA is according to the German Grading system. Grading scheme: 1.0 - 1.5 = very good ■ 1.6 - 2.5 = good ■ 2.6 - 3.5 = satisfactory ■ 3.6 - 4.0 = sufficient ■ 4.1 - 5.0 = fail.

<sup>2</sup>Grading scheme: 4.0 = Outstanding(A) ■ 3.67 = Excellent(A-) ■ 3.33 = Very Good(B+) ■ 3.00 = Good(B) ■ 2.67 = Average(B-) ■ 2.33 = Satisfactory(C+) ■ 2.00 = Pass (C) ■ 1.00 = Pass(D).

## Projects and Theses

### Extended 3D model for pupil-tracking

Supervisor: Dr. David Greenberg

Research internship  
[09.2015 - 04.2016]

Project Description: My project at CAESAR consisted of extending the 3D model for pupil-tracking from circular pupil, as previously done in lab [Wallace et al., *Nature*, 2013], to elliptical pupil and implementation of the pupil-tracking algorithm in the eye-tracking software developed at the lab.

### Emergent Gravity and Cosmology: Thermodynamic perspective<sup>3</sup>

Supervisor: Prof. Dr. Claus Kiefer

M.Sc. Thesis  
[05.2014 - 05.2016]

## Courses

### M.Sc. Physics Modules

General Relativity and Cosmology 1 & 2 | Quantum Field Theory 1 | Advanced Quantum Mechanics  
| Advanced Laboratory Course | Seminar on Advanced General Relativity  
| X-ray and radio observations of dark matter and dark energy | Quasars and Microquasars  
| Physics of Particle detectors | Condensed Matter Physics | Photonic devices

### B.Sc. Mathematics Modules

Logics | Advanced Calculus | Differential equations | Vector analysis  
| Abstract Algebra | Fourier transforms | Real and complex analysis | Numerical methods

### Physics Modules

Classical Mechanics | Electrodynamics | Optics | Quantum Mechanics  
| Electronics and Instrumentation | Astrophysics | Nuclear Physics

### Chemistry Modules

Physical Chemistry | Inorganic Chemistry | Organic Chemistry  
| General Chemistry | Biochemistry

## Computer Skills

Programming skills Python, MatLab, ROS, C++.  
Web development HTML, CSS, jQuery, JavaScript.  
Algebra Mathematica.  
Media L<sup>A</sup>T<sub>E</sub>X, Microsoft Visual Basic, Adobe Illustrator.  
Operating systems Linux (Ubuntu and its variants), Windows 7 (proficient).

## Languages

English Fluent  
German limited working proficiency (B1.1)  
Marathi Native language  
Hindi Native language

<sup>3</sup>The slides of my thesis defense are available at <http://www.thp.uni-koeln.de/gravitation/mitarbeiter/dhole.html>

## Talks and Invited Seminars

- Masters Colloquium: ‘Emergent Gravity and Cosmology: Thermodynamic Perspective’, University of Bonn, May 22, 2015.
- Invited Talk - ‘Emergent Gravity - Thermodynamic Perspective’, BCGS Weekend Seminar at the Physikzentrum, Bad Honnef, Germany, April 19, 2015.

## Awards, Grants and Prizes

- Scholarship €6,000 in total, Stiftung caesar, for period of 6 months starting Sept., 2015.
- 2nd place in Convergence – Inter-collegiate Mathematics fest 2011.
- 2nd place in Eureka – Intercollegiate Physics Festival 2011.
- 3rd place in Chemicus – Intercollegiate chemistry fest in crosswords (B. Sc. 5th Semester) 2011.
- 2nd place in Chemicus – Intercollegiate chemistry fest in 20 questions (B. Sc. 5th Semester) 2011.
- 2nd place in Intercollegiate Mathematics Quiz (B. Sc. 3rd semester) 2010.
- 1st place in Intercollegiate Mathematics Quiz at NMKRV (B. Sc. 3rd Semester) 2010.
- 2nd place in Intra-collegiate Mathematics Quiz (B. Sc. 2nd Semester) 2010.
- 1st place in Intra-collegiate Mathematics Mega Event (B. Sc. 2nd Semester) 2010.
- 3rd place in Inter-collegiate Science Quiz (B. Sc. 1st semester) 2009.

## Attended Conferences and Graduate Schools

- ESI Systems Neuroscience Conference (ESISync), at FIAS, Frankfurt, Germany, July 7-8, 2016.
- Heidelberg Neuronal Ensemble Conference (HeiNEC), at Heidelberg, Germany, Oct. 9-10, 2015.
- Conference on Extended theories of Gravity, at Nordic Institute for Theoretical Physics (NORDITA), Stockholm, Sweden, March 9–14, 2015.
- 569 WE-Heraeus-Seminar: ‘Quantum Cosmology’, at the Physikzentrum, Bad Honnef, Germany, July 28 – August 01, 2014.
- Graduate school ‘From Classical to Quantum GR: Applications to Cosmology’, held at University of Sussex, Brighton, UK, April 23-25, 2014.
- Participation in the hosting committee for Planck Conference - 2013, University of Bonn, Germany.
- Research Education Advancement Program (REAP)-2009, Nehru Planetarium, Bangalore, India.

## Academic References

Dr. David Greenberg  
 Dept. of Behaviour and Brain Organization  
 Research Center caesar  
 Ludwig-Erhard-Allee 2  
 53175 Bonn  
 Germany  
 Phone: +49 (0)228 9656-303  
 E-mail: david.greenberg@caesar.de

Dr. Jason Kerr  
 Dept. of Behaviour and Brain Organization  
 Research Center caesar  
 Ludwig-Erhard-Allee 2  
 53175 Bonn  
 Germany  
 Phone: +49 (0)228 9656-103  
 E-mail: jason.kerr@caesar.de

Prof. Dr. Claus Kiefer  
 Institut für Theoretische Physik  
 Universität zu Köln  
 Zùlpicher Straße 77  
 50937 Köln  
 Germany  
 Phone: 0221 470-4301  
 0221 470-4300 (secretary)  
 Fax: 0221 470-2189  
 E-mail: kiefer@thp.uni-koeln.de

Prof. Dr. Pavel Kroupa  
 Helmholtz Institut für Strahlen- und Kernphysik (HISKP)  
 Universität Bonn  
 Nussallee 14-16  
 D-53115 Bonn  
 Germany  
 Tel: 0228 73-6140 (office)  
 73-3655 / -2366 (secretary)  
 Fax: 0228 73-7666 / -2505  
 E-mail: pavel@astro.uni-bonn.de

## Work Reference

Dr. Idil Kokal  
*Managing Director*, Bonn-Cologne Graduate School  
 Helmholtz Institut für Strahlen- und Kernphysik (HISKP)  
 Universität Bonn  
 Nussallee 14-16  
 D-53115 Bonn  
 Germany  
 Tel: 0228 73-4832 (office)  
 E-mail: ikokal@uni-bonn.de