

# Alex B. Nielsen

Date of Birth: 06 September 1976  
Citizenship: Denmark  
Languages: English, Danish, German, French  
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## Employment

2011-present Research scientist, Max Planck Institute (AEI),  
Hanover, Germany  
2009-2011 Humboldt post-doctoral fellow, Max Planck Institute (AEI),  
Potsdam, Germany  
2007-2009 Post-doctoral fellow, Center for Theoretical Physics, Seoul National University,  
Seoul, Korea  
2003-2006 Tutor and teaching assistant, University of Canterbury  
2003-2004 Graduate assistant to Dr. David Wiltshire, Christchurch, New Zealand  
2000-2002 Financial analyst, Morgan Stanley Dean Witter, London, United Kingdom

## Education

2004-2007 **Ph.D. in Theoretical Physics**  
Date of award: 27 April 2007  
Thesis title: “Black hole horizons and black hole thermodynamics”  
University of Canterbury, New Zealand  
Supervisor: Dr. David Wiltshire  
1998-1999 **M.Sc. (Distinction)**  
Quantum Fields and Fundamental Forces,  
Imperial College, United Kingdom  
Supervisor: Prof. Kellogg Stelle  
1997-1998 4<sup>th</sup> year graduate courses in theoretical physics  
University of Copenhagen, Copenhagen, Denmark  
1994-1997 **B.Sc. (First Class Honours)**  
Physics with Theoretical Physics,  
Imperial College, London, United Kingdom

## Awards

2011 Max Planck Society Research Fellowship  
2009 Alexander von Humboldt Foundation Fellowship  
2008 Classical and Quantum Gravity Highlights for “Dynamical Surface Gravity”  
2004 Marsden PhD Scholarship

## Teaching Experience

2014	Graduate lectures on Astrophysics, International Max Planck Research School, Mallorca, Spain
2013	Undergraduate lectures on black holes, University of Hannover, Germany
2011	Supervised summer PhD student, Javad Tagizadeh-Firouzjaee
2011	Invited lecturer at Shanghai Asia-Pacific School and Workshop on Gravitation, Shanghai Normal University, Shanghai, China
2009	Invited lecturer at APCTP-NCTS International School on Gravitation and Cosmology, Pohang, Korea
2008	Graduate lecture course on Hawking and Unruh radiation, Undergraduate lecture course on black holes, Seoul National University, Korea
2007	Graduate lecture series on Black Hole Thermodynamics, Seoul National University, Korea
2006-2007	Private tutor of high school physics and mathematics students
2005	Undergraduate lecture series on the outstanding problems of physics University of Canterbury, New Zealand
2004-2007	Tutor of first year mathematics and physics evening classes.
2003-2007	Teaching assistant for first and second year undergraduate physics students, University of Canterbury, New Zealand

## Research interests

Neutron star and black hole binary systems and gravitational waves  
Astrophysical observations of spinning black holes and dynamical black holes  
Non-gaussian noise structure and principal component analysis of signals  
Dynamical collapse formation of astrophysical black holes  
Conformal transformations and their relation to quantum anomalies and Hawking radiation  
Local and quasi-local properties of cosmological and black hole horizons