Aron Jonathan Beekman

Curriculum Vitae

Personal

Address	NIMS Advanced Key Technologies Division Computational Materials Science Unit, Material Properties Theory Group Collaborative Research Building 216 1-1 Namiki, Tsukuba, Ibaraki, 305-0044
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Research interests

Theoretical physics, amongst which:

- spontaneous symmetry breaking, Nambu–Goldstone modes
- vortex–boson/Abelian-Higgs dualities, quantum liquid crystals
- topological defects, skyrmions, vortices

Education and Research Positions

2015 -	**Postdoctoral Researcher** NIMS Advanced Key Technologies Division, Tsukuba, Ibaraki
2012 - 2015	**Foreign Postdoctoral Researcher** RIKEN Center for Emergent Matter Science, Wako, Saitama
2006 - 2011	**PhD Theoretical Physics** Leiden University, The Netherlands thesis: "Vortex duality in Higher Dimensions" advisor: Jan Zaanen
1998 - 2005	**MSc Theoretical Physics** University of Amsterdam, The Netherlands thesis: "Quantum double symmetries of the even dihedral groups and their breaking" advisor: Sander Bais

Academic Activities

fall 2006	Teaching Assistant, PhD course Advanced Theory of Condensed Matter by Jan Zaanen
spring 2007	Teaching Assistant, MSc course Field Theory by Pierre van Baal
fall 2007	Teaching Assistant, MSc course Theory of Condensed Matter by David Santiago
2007 - 2011	PhD council Dutch Research School for Theoretical Physics
2012 - 2015	Organizer RIKEN Interdisciplinary Discovery Evenings

Skills

Languages	Dutch (native); English (fluent); French, German, Japanese (intermediate)
Programming	Proficient in HTML, ColdFusion, PHP, SQL, JavaScript; familiar with C, C++, Java, Python, Sage, Mathematica, Blender

Invited presentations and seminars

2014	Center for Correlated Electron Systems, Seoul National University
2014	National Institute for Materials Science, Tsukuba
2012	RIKEN Interdisciplinary "Discovery Evening"
2012	Max-Planck-Institut für Quantenoptik, Garching, "Group Seminar MPQ"
2012	University of Amsterdam, "Condensed matter lunch seminar"
2012	Leiden University, Faculty of Science, "This week's discoveries"
2012	Physics@FOM, Veldhoven
2011	Dutch Research School for Theoretical Physics "PhD Day"

Conferences & Schools

2014	"Novel Quantum Materials and Phases", OIST, Okinawa
2014–2015	APS March Meeting
2014	"FIRST International Symposium on Topological Quantum Technology", Tokyo
2014	RIKEN-APW joint workshop "Highlights in condensed matter physics", Wako
2013	"Emergent Phenomena of Correlated Materials", FIRST-QS2C, Tokyo
2013	"Strongly Correlated Electron Systems 2013", Tokyo
2013	"Emergent Quantum Phases in Condensed Matter", ISSP Kashiwa
2013	"Theory Forum", FIRST-QS2C, Wako
2012	"Innovations in Strongly Correlated Electronic Systems", ICTP Trieste
2012	"International conference on topological quantum phenomena", Nagoya University
2012	"Tonomura FIRST International Symposium", Tokyo
2011	"Science Communicated", Casimir Research School
2011	"Unconventional Superconductivity", University of Minnesota
2011	"100th Anniversary of Superconductivity", Lorentz Center, Leiden University
2010	"3rd UK–NL Condensed Matter Meeting", Cambridge University
2010	"Gordon Research Conference on Correlated Electron Systems", Mount Holyoke
2009	"9th Materials and Mechanisms of Superconductivity", Tokyo
2009	"Low-D Quantum Condensed Matter", Center for Mathematical Physics Amsterdam
2009	"Cambridge–Leiden easyMeeting on Quantum Matter", Leiden University
2008	"25th International Conference on Low Temperature Physics", Amsterdam
2008–2011	"PhD Day", Dutch Research School for Theoretical Physics
2007	"50th anniversary of BCS: From BCS to Exotic Superconductivity", I2CAM, Cargèse
2007,2009,2011	"Trends in Theory", Dutch Research School for Theoretical Physics
2007–2012	FOM Physics@Veldhoven
2006	"Quantum Criticality", Lorentz Center, Leiden University
2006,2007	"Postgraduate School SP–TCM", Dutch Research School for Theoretical Physics
2006,2008	"Spring School", Casimir Research School

Publications

A.J. Beekman — Ann. Phys. **361**:461 (2015)
Criteria for the absence of quantum fluctuations after spontaneous symmetry breaking

N. Ogawa, W. Koshibae, A.J. Beekman, N. Nagaosa, M. Kubota, M. Kawasaki, Y. Tokura — PNAS **112**(29):8977 (2015)
Photo-drive of magnetic bubbles via magnetoelastic waves

J. Iwasaki, A.J. Beekman and N. Nagaosa — Phys Rev B **89**:064412 (2014)
Theory of magnon-skyrmion scattering in chiral magnets

A.J. Beekman, K. Wu, V. Cvetkovic and J. Zaanen — Phys Rev B **88**:04121 (2013)
Deconfining the rotational Goldstone mode: the superconducting nematic liquid crystal in 2+1D

A.J. Beekman and J. Zaanen — Phys Rev B **86**:125129 (2012)
Type-II Bose–Mott insulators

(Editor's suggestion) J. Zaanen and A.J. Beekman — Ann Phys **327**(4):1146 (2012)
The emergence of gauge invariance: the stay-at-home gauge versus local–global duality

A.J. Beekman and J. Zaanen — Front Phys **6**(4):357 (2011)
Electrodynamics of Abrikosov vortices: the field theoretical formulation

A.J. Beekman, D. Sadri and J. Zaanen — New J Phys **13**:033004 (2011)
Condensing Nielsen-Olesen strings and the vortex-boson duality in 3+1 and higher dimensions