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# Burin Gumjudpai

The Institute for Fundamental Study  
Naresuan University, Phitsanulok 65000, Thailand

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RESEARCH INTERESTS	<b>Theoretical Cosmology, Non-Equilibrium Thermodynamics</b>	
EMPLOYMENT	<b>Naresuan University</b> , The Institute for Fundamental Study ◊ Lecturer in Theoretical Physics	1 June 2011-Present
	<b>Naresuan University</b> , Department of Physics ◊ Lecturer in Physics	1996-31 May 2011
	<b>University of Portsmouth</b> , Department for Teaching and Learning ◊ P/T Lecturer in Mathematics and Sciences Skills	2002-2003
	<b>University of Portsmouth</b> , School of Mathematics & Computer Science ◊ Teaching Assistant in Astronomy	2001-2002
VISITING POSITIONS	<b>Queen Mary, University of London</b> Astronomy Unit ◊ Visiting Researcher	March 2012
	<b>University of Durham</b> IPPP, Centre for Particle Theory ◊ Visiting Researcher	2011-2012
	<b>University of Cambridge</b> Department of Applied Mathematics and Theoretical Physics ◊ Visiting Scholar	2008-2009
EDUCATION	<b>University of Portsmouth</b> , Institute of Cosmology and Gravitation ◊ Ph.D. in Cosmology Dissertation Title: <i>Braneworld Effects on Cosmological Dynamics</i> Supervisor: Prof. Roy Maartens	2000-2003
	<b>University of Sussex</b> , Centre for Theoretical Physics ◊ M.Sc. in Physics Dissertation Title: <i>Tunnelling in Field Theory</i> Supervisor: Dr. Mark B. Hindmarsh	1998-1999
	<b>Chiang Mai University</b> , Department of Physics ◊ B.S. (Physics) - with Minor in Mathematics Senior Project Title: <i>Ferroelectric Properties of Barium Titanate Single Crystal</i> Advisor: Dr. Gobwute Rujjanakul	1991-1996
HONORS & AWARDS	<b>TRF Advanced Research Scholar</b>   2010-2013 The Thailand Research Fund	
	<b>TTSF Research Grant</b>   2009 Thailand Toray Science Foundation	

**Fellow** | elected 2008  
Thailand Academy of Science and Technology

**ICTP Junior Associateship** | 2008-2014  
The Abdus Salam International Centre for Theoretical Physics, Trieste, Italy

**Thailand Young Scientist Award** | 2008  
Foundation for the Promotion of Science and Technology under the Patronage of His Majesty the King

**Honorable Mention, NRCT Thesis Prize in Physical Science and Mathematics** | 2007  
The National Research Council of Thailand

**Naresuan University Outstanding Researcher Prizes**  
(winner of 5 prizes in 2006, 2007, 2008 and 2009)  
Naresuan University

**The TRF-CHE Outstanding New Researcher Award** | 2005  
The Thailand Research Fund & Commission on Higher Education, Thailand

**F.R.A.S.** | elected 2003  
Fellow of the Royal Astronomical Society, U.K.

SELECTED  
PUBLICATIONS

B. Gumjudpai (DAMTP & TPTP) and J. Ward (U. Victoria)  
“Generalised DBI-Quintessence”  
Phys. Rev. D 80, 023528 (2009) [arXiv: 0904.0472 [astro-ph.CO]]

B. Gumjudpai (DAMTP & TPTP)  
“Slow-Roll, Acceleration, the Big Rip and WKB Approximation in NLS-type Formulation of Scalar Field Cosmology”  
JCAP 09(2008)028, arXiv: 0805.3796 [gr-qc]

B. Gumjudpai (TPTP & Suranaree)  
“Scalar Field Exact Solutions for Non-Flat FLRW Cosmology: A Technique from Non-Linear Schrödinger-Type Formulation”  
Gen. Rel. Grav., 41, 249 (2009), arXiv: 0710.3598 [gr-qc]

D. Smart & B. Gumjudpai (TPTP)  
“Phantom Field Dynamics in Loop Quantum Cosmology”  
Phys. Rev. D 76, 043514 (2007), arXiv:0704.3414 [gr-qc]

B. Gumjudpai (TPTP), T. Naskar (IUCAA) and J. Ward (Queen Mary London)  
“A Quintessentially Geometric Model”  
JCAP 11(2006)006, [arXiv: hep-ph/0603210]

B. Gumjudpai (TPTP), T. Naskar, M. Sami (IUCAA) and S. Tsujikawa (Gunma Coll.)  
“Coupled Dark Energy: Towards a General Description of the Dynamics”  
JCAP 06(2005)007 (2005) [arXiv: hep-th/0502191]

S. Tsujikawa (ICG-Portsmouth) and B. Gumjudpai (TPTP)  
“Density Perturbations in Generalized Einstein Scenarios and Constraints on Nonminimal Couplings from the Cosmic Microwave Background”  
Phys. Rev. D 69, 123523 (2004) [arXiv: astro-ph/0402185]

INVITED REVIEWS

B. Gumjudpai (DAMTP & TPTP)  
“Scalar Field Cosmology: Its Non-Linear Schrödinger-Type Formulation”  
Ch.4 in Dark Energy-Current Advances and Ideas, Research Signpost 2009  
[arXiv: 0904.2746 [gr-qc]]

SELECTED  
INVITED TALKS

Invited Lecture on Cosmology  
The 1st CERN School Thailand 2010, Chulalongkorn University, Bangkok

Invited Talk “Dark Energy and Acceleration of the Universe”  
The 34th Congress on Science and Technology of Thailand 2008 (STT 34th), Bangkok

Invited Talk “Coupled Phantom Field in Loop Quantum Cosmology”  
The SIAM Physics Congress 2007 and the Thai National Astronomy Meetings 2007  
Nakhon Prathom

Plenary Talk “Modern Cosmology Research in Thailand”  
The 1st National Symposium on Physics Graduate Research (2006), Chaiyaphum

SELECTED  
SEMINARS

“Canonical Scalar Field Cosmology in Non-Linear Schrödinger-Type Formulation”  
Cosmology Seminar, Astronomy Centre, University of Sussex (9 Dec 2008)

“Scalar Field Cosmology with NLS Formulation”  
Cosmology Lunch: joint DAMTP-IoA-Cavendish Seminar, at DAMTP, Cambridge  
(9 June 2008)

“Phantom Field Dynamics in Loop Quantum Cosmology”  
The Forth Aegean School on Black Holes (2007)  
Mytilini, Island of Lesbos, Greece

JOURNALS/  
CONFERENCES  
REFEREEING

◇ European Physical Journal C (since 2008)  
◇ Thai Journal of Physics: Proc. of the SIAM Phys. Cong. (since 2007)  
◇ Congress on Science and Technology of Thailand (STT) (The 36th-2010)

PROFESSIONAL  
CONTRIBUTION

◇ Director, Naresuan University Center of Excellence in Physics  
◇ Founder, the Institute for Fundamental Study, Naresuan University  
◇ Head of the Cosmology Research Laboratory, Thailand Center of Excellence in Physics  
◇ Advisory Committee: NSTDA Thai Science Communication Center (since 2007)  
◇ Program Committee: The SIAM Physics Congress (in 2007 & 2008)  
◇ Chair, Theo. Astrophys. & Cosmol. WG, South-East Asian Astron. Network (SEAAN)  
(since 2007)  
◇ Founder & Headmaster: The Tah Poe Acad. Inst. for Theo. Phys. & Cosmol. (TPTP)  
◇ Founder, SOC: The Thai School on Cosmology I, II, III (2002, 2003, 2004)  
◇ Founder, SOC: The Siam GR+HEP+Cosmo Symposium I, II, III, IV  
(2003, 2004, 2005, 2009)

TEACHING  
EXPERIENCE

**Naresuan University Undergraduate Courses:**

◇ Introductory Physics ◇ Medical Physics ◇ Physics I ◇ Physics II ◇ Philosophy of Science  
◇ Scientific Methods in Physics ◇ Classical Mechanics I ◇ Thermal Physics  
◇ Waves and Vibrations ◇ Modern Physics ◇ Quantum Mechanics II  
◇ Introduction to General Relativity and Gravitation  
◇ Introductory Cosmology ◇ Particles and Fields

**Naresuan University Graduate Courses:**

◇ Classical Dynamics ◇ General Relativity ◇ High Energy Physics ◇ Relativistic Cosmology

REFERENCES

Prof. Mark B. Hindmarsh  
Department of Physics and Astronomy  
School of Science and Technology, University of Sussex  
Brighton, BN1 9RH, UK

Prof. Roy Maartens  
Institute of Cosmology and Gravitation

Dennis Sciama Building  
Burnaby Road  
Portsmouth, PO1 3FX, UK

Prof. Anne C. Davis  
Department of Applied Mathematics and Theoretical Physics  
Centre for Mathematical Sciences, Wilberforce Road  
Cambridge, CB3 0WA, UK

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Homepage:    <http://www.tptp.in.th/burin>