



DR. SAKSHIN BUNTHAWIN (ดร.ศักข์ชิน บุญถวิล)
Assistant Professor of Physics (ผู้ช่วยศาสตราจารย์ สาขาฟิสิกส์)
Faculty of Technology and Environment
Prince of Songkla University



Office: Biophysics Laboratory 1308, 3rd floor, Building 1,
 Faculty of Technology and Environment (TE), Phuket Region Education,
 Prince of Songkla University, Kathu, Phuket, 83120, Thailand.
 Tel. +66 76 276154, Fax. +66 76 276102

Home: 94/5 Amphurmuang Phuket, Phuket, Thailand 83000

Email: Sakshin@phuket.psu.ac.th, sorawuth.b@psu.ac.th

Cell phone: +66 84 7472388

PERSONAL INFORMATION

ID: 3100502952605
Birthday: 8 November 1973
Birthplace: Bangkok, Thailand
Religion: Buddhism
Nationality: Thai
Marital status: Married

EDUCATION

Course /Degree	Institution	Year	Scholarship
Doctor of Philosophy (Physics)	Prince of Songkla University	November 2008	NANOTEC and UDC*
Master of Science (Physics)	Prince of Songkla University	June 1997 – April 1999	NSTDA**
Bachelor of Science (Physics)	Prince of Songkla University	June 1993 – April 1996	Full-time study

* **Thesis Title:** Development of Laplace and Impedance Approaches for Spheroid in Traveling Wave Electric Field. (Granted by UDC Fund of Thailand and NANOTEC Center of Excellence at Prince of Songkla University, Thailand)

** **Thesis Title:** Estimation of Dielectric Parameters for Single Plant Cells Using Dielectrophoretic Method. (Granted by National Science and Technology Development Agency, Ministry of Science and Technology, Thailand)

RELEVANT SKILL: Specialized in biophysics: bio-particles separation: biological cell electro-mechanics, electrical cell model

Computer Expertise: Maple, Mathematica, Quick Field, MS-Office user

Research Expertise: Electro-mechanics of biological cell in an intense AC electric field, determinations of cell dielectric properties using dielectrophoresis (DEP) technique with Laplace and RC-Models

Research Interests: Electrical model of a non-spherical cell, travelling wave dielectrophoresis (twDEP), bio-particles separation

FACULTY APPOINTMENT:

2005-: Assistant Professor, Faculty of Technology and Environment (TE), Prince of Songkla University, Phuket Campus.

SCHOLARSHIPS AND RESEARCH GRANTS:

1997-: Scholarships for Australia-Thailand students and staffs exchanged program

1997-1999-: Scholarships for Master degree-academia achievements granted by National Science and Technology Development Agency, Ministry of Science and Technology, THAILAND.

Research Topic: *Estimation of dielectric parameters for single plant cells using dielectrophoresis method*

2005-2007-: Scholarships for Doctor of Philosophy degree-academia achievements granted by Thailand Ministry of Education.

Research Topic: Cell separation using travelling wave dielectrophoresis

2001:- Research Topic: Development of a computer program to investigate electrical properties of Phuket pineapple leaf single cells by using dielectrophoresis, granted by Prince of Songkla University (55,000 THB) (**leader project**)

2003:- Research Topic: Development of a single cells spherical shell model for an investigation of electrical properties with computing program, granted by Prince of Songkla University (80,000 THB) (**leader project**)

2004:- Research Topic: An investigation of sound intensity resulted from airplane at MaiKao beach, granted by Phuket Community College, Prince of Songkla University (66,000 THB) (**leader project**)

2007:- Research Topic: A study of cell separation using traveling wave dielectrophoresis Phase 1: Octa-pairs interdigitated electrode, granted by Faculty of Technology and Environment, Prince of Songkla University (99,500 THB) (**leader project**)

2008:- Research Topic: Development of an electrical force model for cell suspension in travelling wave dielectrophoresis, granted by Faculty of Technology and Environment, Prince of Songkla University (52,800 THB) (**leader project**) TAE5127990130S

2008:- Research Topic: Effect of insecticide on changes in cell electrical properties of *Tetraselmis sp.* calculated from the critical frequency through an ellipsoidal cell model for suspensions, granted by Prince of Songkla University (149,280 THB) (**leader project**) (TAE5122020018S: Phuket Campus supported 24,880.-)

OVERSEA ACADEMIC TRAINING:

1997:- Trained in **dielectrophoresis** (Reference: Prof. Dr.Hans G.L.Coster) at UNESCO Center of Membrane Science and Technology, School of Physics, University of New South Wales, Australia. (Jun.-Nov.1997)

2004:- Trained in **RC-electrical cell models and critical frequency** (Reference: Prof. Dr.Jan Gimsa) at Department of Biology, University of Rostock, Gertrudenstr.11A, Rostock, Germany. (Oct.2004-Jan.2005)

SELECTED PUBLICATIONS DURING 2003-2008

1.Bunthawin, S., Butrat, P. and Boonlamp, M. 2003. *Development of a computer program to investigate electrical properties of Phuket pineapple leaf single cells by using dielectrophoresis*. Songklanakarin J. Sci. Technol, 25(2):227-237.

2. Bunthawin, S. and Tantanuth J .1999. *Determinations of Dielectric Parameters for Single Plant Cells Using Delphi Program*, 25th Congress on Science and Technology of Thailand. 20-22 October 1999, Pitsanuloke. Thailand.

3.Bunthawin, S. and Boonlamp, M. 2005. *Development of a single cells spherical shell model for an investigation of electrical properties with computing program*. Songklanakarin J Sci Technol 27: 393-416.

4.Wanichapichart, P. ,Sudsiri, J., **Bunthawin, S.**, Maswiwat, K. and Kanchanapoom, K. 2000. *Electro-Mechanics of Single Cells in an Electric Field and Its Applications*, 26th Congress on Science and Technology of Thailand. 18-20 October 2000 at Queen Sirikit National Convention Center, Bangkok, Thailand.

5.Wanichapichart,P., Bunthawin,S., Kaewpaiboon,A.and Kanchanapoom,K. 2002. *Determination of Cell Dielectric Properties Using Dielectrophoretic Technique*. Journal of Science Asia, 28:113-119.

6.Bunthawin,S. and Wanichapichart, P. 2006. *Theoretical approach for dielectric properties of ellipsoidal cells using RC- Model*. Thai Journal of Physics (Series 2): Proceeding of the Siam Physics Congress 2006, pp. 18-24.

7.Bunthawin,S. and Wanichapichart, P. 2007. *An RC-model for dielectrophoresis of an ellipsoidal cells: A method for determination of dielectric properties*. Proceeding of the 2nd IEEE International Conference on Nano/Micro Engineering and Molecular Systems, pp. 472-477.

8.Bunthawin, S., Wanichapichart, P. and Gimsa, J. 2007. *An investigation of dielectric properties of biological cells using RC-model*. Songklanakarin J Sci Technol 29 (4): 1163-1181.

9.Bunthawin S., Wanichapichart P., and Tuantranon A. 2008. *Detection of Plant Cell Compartments and Changes in*

Cell Dielectric due to Arsenic Absorption via Traveling Wave Dielectrophoresis. NSTI-Nanotechnology 2008, 1-5 June Boston, MA, USA. ISBN 978-1-4200-8505-1 Vol. 3, 485-488.

CONFERENCE ACTIVITY/ORAL AND POSTER PRESENTATIONS :

National

- Oct. 1999 25th Congress on Science and Technology of Thailand, Amarin Lagoon Hotel Pitsanuloke, Thailand.
Poster presented on: Determinations of Dielectric Parameters for Single Plant Cells Using Delphi Program.
- Oct. 2000 26th Congress on Science and Technology of Thailand, Queen Sirikit National Convention Center, Bangkok, Thailand. **Poster presented** on: Electromechanics of Single Cells in an Electric Field and Its Applications
- Mar. 2006 Siam Physics Congress 2006, the Tide Resort, Bangsaen, Chonburi, Thailand.
Oral presented on: Theoretical approach for dielectric properties of ellipsoidal cells using RC- Model.
- Aug. 2007 The First Thailand National Nanotechnology Conference on Nanomaterials, Pharmaceuticals, Devices and Applications, the Central Duangtawanna, Chiangmai, Thailand.
Oral presented on: Force acting on an Ellipsoid due to an Octa-pairs Interdigitated Electrodes.
- Mar. 2008 Siam Physics Congress 2008, Khao Yai, Nakhon Ratchasima, Thailand.
Oral presented on: Forces on Spheroid due to Travelling Electric Field: A New Approach for Determination of Cells Dielectric Properties.
- Mar. 2009 Siam Physics Congress 2009, Methavalai Hotel, Cha-Am, Phetchburi, Thailand.
Oral presented on: Travelling Wave Dielectrophoretic Force of a Very Dilute Prolate-Spheroid Suspension.

International

- Jan. 2007 2nd Annual IEEE Int.Conf.on Nano/Micro Engineering and Molecular Systems, the Imperial Queen's Park Hotel , Bangkok, Thailand. Poster presented on: An RC-Model for Dielectrophoresis of Ellipsoidal Cells: A Method for determination of Dielectric Properties.
- Mar.2007 Siam Physics Congress 2008, Physics for Life, Khao Yai, Nakhon Ratchasima , Thailand.
Oral presented on: Forces on Spheroid due to Travelling Electric Field: A New Approach for Determination of Cells Dielectric Properties.
- June. 2008 The 2008 NSTI Nanotechnology Conference and Trade Show, June 1-5, 2008, Boston, Massachusetts, U.S.A.
Poster presented on: Detection of Plant Cell Compartments and Changes in Cell Dielectric due to Arsenic Absorption via Traveling Wave Dielectrophoresis.

On-going research (a colleague): **Separation of cell suspension in travelling wave** (granted by NANOTEC Center of Excellence at Prince of Songkla University, Thailand. (857,000 THB)

Patent Pending: Adjustable Phase Shift Unit for Interdigitated Electrode (2008-2009)

LECTURE CLASSES (During October 2007- October 2008)

Semester 2/2007

- General Physics II : 332-104 (3 Credits) (61 students)
- General Physics Lab II : 332-114 (1 Credits) (61 students)

Semester 1/2008

- General Physics I : 332-103 (3 Credits) (107 students)
- General Physics Lab I : 332-113 (1 Credits) (107 students)

Semester 2/2008

- Seminar : 978-505 (1 Credits) (Master degree students)
 - Biophysics : 978-551 (3 Credits) (Master degree students)
 - Mathematic Model: 978-552 (3 Credits) (Master degree students)
 - Inter-disciplinary Approach to Science and Technology: 812-102(3 Credits)
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