

Name : Agung Trisetyarso Sutomo
Born : Jakarta, May 19, 1976
Address : Jalan Karya Bakti No. 77, Rt.003, Rw.006
Tanah Baru, DEPOK
Jawa Barat 16426
Telephone : (+62) - 8568995060
Email : trisetyarso@agungtrisetyarso.com, trisetyarso@gmail.com
Website : <http://www.agungtrisetyarso.com>

CAREER PROFILE

Theoretical Physicist with more than 2 years experience as Physics Lecturer and 1 year as rigorous Programmer. Strong analytical, very fast learner, oral and written communication skills excellently. Consistently meet tight deadline schedules within dynamic environments. Effective equally working independently or as part of a team. Comfortably interface with all levels of management.

PROFESSIONAL EXPERIENCE

Keio University
Japan

February 2007 - ???

PhD Candidate

I have been offered as International PhD student at Keio University Institute of Applied Physics and Physico-Informatics.

TOSHIBA Corp.
Indonesia

July 2006

Employee

I am selected from Toshiba Global Recruitment.(declined)

Quantum Futures (<http://www.quantumfutures.co.id>)
Jakarta, Indonesia

September 2005 to April 2006

Financial Analyst

Working with financial analytical tools in financial derivative markets (GBPUSD foreign exchange, especially), such as Japanese Candlesticks, Elliott Wave, Fibonacci Retracements (Fan, Arcs etc.), Ichimoku Kinko Hyo, ADMI (Average Directional Movement Index), Stochastic Oscillator, and Moving Average (Single Moving Average (MA(4)), Two Moving Averages (Double Crossover Method) and Three Moving Averages (Triple Crossover Method)).

**Citibank Sales and Distribution Department
Jakarta, Indonesia**

January 2005 to May 2005

Management Information System Database Administrator

My responsibility is to build and analyze the information system used in the Department, such as Recruitment Information System and Human Resource Department Information System. In Citibank Sales and Distribution, we used Microsoft visual studio (Visual C++, Visual Basic and Visual FoxPro) as tools.

**Institute of Information Technology Tanmia
Jakarta, Indonesia**

August 2004 to March 2005

Statistics and Probability Lecturer

The applications of statistics and probability are explored in this lecture. Data Mining, Monte Carlo methods and the calculus of probability are briefly introduced. This lecture used “Calculus Volume.II” by Tom Apostol, “Introduction to Monte Carlo Methods” by Daan Frenkel and “Thinking in Java” by Bruce Eckel as main references.

**Islamic State University
Jakarta, Indonesia**

March 2004 to May 2004

Electromagnetic Field Theory Lecturer

Electromagnetic Field Theory lectures using *The Feynman Lectures on Physics* as main reference for physics undergraduate student. This lecture embraced:

- Mathematical tools for Electromagnetic Field Theory such as partial differential and integral calculus.
- Introduction to Field Theory.

**Institute of Information Technology Tanmia
Jakarta, Indonesia**

March 2004 to May 2004

Mathematical Discrete Lecturer

Mathematical Discrete lecture covering Set, Proposition, Boolean, Graph and Function Theories and also their Algebra.

**Totalindo Rekayasa Telematika
Jakarta, Indonesia**

2003

Programmer

Visual C++ Programmer.

University of Al-Azhar Indonesia, Jakarta, Indonesia

August 2002 to 2005

Basic Physics Lecturer

Basic Physics Lecture using *'The Feynman Lectures on Physics'* as main reference for undergraduate student ranging from electrical engineering, informatics, mathematics, biology to industrial engineering. This lecture embraced:

- Introduction to Classical Mechanics including Newton-Rhapson method.
- Fluids Mechanics.
- Thermodynamics including introduction to information theory.

ITB, Bandung, Indonesia

August 1999 to January 2000

Assistant Quantum Physics Lecturer

Quantum Physics lecture using *'Modern Quantum Mechanics'* by J.J Sakurai as main reference for Physics Department student. My responsibility was teaching for solving quantum mechanics problem.

ITB, Bandung, Indonesia

August 1998 to January 1999

Assistant Basic Physics Lecturer

Basic Physics lecture for electrical engineering student. My responsibility was teaching for problem solving especially Physics problem applying in electrical engineering field.

EDUCATION

Physics Department, Bandung Institute of Technology, Indonesia, 2002

Master of Science (M.Sc), Theoretical Physics.(GPA: 3.53)

(<http://www.agungtrisetyarso.com/Transcript.PDF>)

Master Thesis : Degeneracy Breaking of Hydrogen Atom.

Keyword : Three Dimensional Rotation Group, Symmetry Group, Symmetry Breaking, Orbital Moment Magnetic, Normal Zeeman Effect.

Physics Department, Bandung Institute of Technology, Indonesia, 2000

Bachelor of Science (B.Sc), Theoretical Physics.(GPA: 3.00)

(http://www.agungtrisetyarso.com/doc_01.jpg)

Final Project Title : Darboux Transformation and the Multisoliton Solution of The Nonlinear Schrödinger Equation.

Keyword : Darboux transformation, nonlinear evolution equation, Zakharov-Shabat system, Multisoliton solution.

Senior High School SMU 82, Jakarta, Indonesia, 1995

The best top ten in prestigious class.

PROFESSIONAL DEVELOPMENT

Computer Skills

Maple

- All Versions

Metaquotes Language 4 (MQL4)

Mathematica

- All Versions

Java

- J2SE
- J2ME
- J2EE

C & C++

EDP

- MS Office (MS Word, MS Excel)

Operating Systems

- MS Windows95&98
- Windows NT

PHP

MySQL & RDBMS

ORGANIZATIONAL EXPERIENCE

No.	Organization	Position	Period
1.	OSIS SMA 82 (Intra-School Organization at '82' Senior High School)	Head of Islamic Division	1993-1994
2.	BIMBEL SALMAN ITB (Education Consultant at SALMAN ITB)	Head	1997-1998
3.	Keluarga Mahasiswa-ITB (Students Government at Bandung Institute of Technology)	Head of Education	1998-1999
4.	HFI (Himpunan Fisikawan Indonesia) Indonesian Physicists Association	Member	2000 - Now
5.	MKI (Masyarakat Komputasi Indonesia) Indonesian Computation Association	Member	2000 - Now
6.	Masyarakat "Interdisiplin" (Interdisciplinary Society, www.groups.yahoo.com/group/Interdisiplin)	Founder	2004 - Now
7.	ICMI (Ikatan Cendekiawan Muslim Indonesia) (Indonesian Moslem Scholar Association)	Member of Expert Committee for Science, Technology and Information Technology Affairs	2005 - Now
8.	Masyarakat "Marketiva" (Marketiva Community, http://finance.groups.yahoo.com/group/Masyarakat_Marketiva/ http://finance.groups.yahoo.com/group/Marketiva_Community/)	Founder	2005 - Now

Candidates of

No	University/Company	Position	Period
1	University of Duisburg-Essen and Research Center Juelich http://www.agungtrisetyarso.com/Supervision.jpg	PhD	2003
2	Toshiba Global Recruitment Program from Toshiba Corporation (One week visiting Japan for job interview from 17-22 July, 2006. We stay at Shin Yokohama http://www.princehotelsjapan.com/ShinYokohamaPrinceHotel/index.asp during the visiting)	Researcher	2006

Preprints Works

e-Forex Trading Modul

<http://www.agungtrisetyarso.com/Modul.pdf>

(Indonesian version)

A review about current technical analyses used to predict financial market behaviour. Relation between the methods, such as Elliott Wave, Fibonacci Retracements, Stochastic Oscillator, Ichimoku Kinko Hyo etc., is introduced in this review.

The Protein-Mediated Signaling Network for Cell Locomotion: a biophysical approach (Research Proposal for Ph.D program)

Introduction: Cell locomotion plays a central role in many biological phenomena, as there are embryogenesis, inflammation, wound healing, and during the growth of axons. Although the molecular components participating in the regulation of cell motility are known to a large extent, their cooperativity and their formation of a signaling network is poorly understood. In general, it is assumed that the locomotion of biological cells is based on signal-mediated polymerization of their cytoskeletons. Recently, it has been shown using computer simulations and theoretical considerations, that the persistency of the random motion and the chemotaxis of a cell is basically due to the autocatalytic polymerization kinetics of the cytoskeletal actin network. It has been demonstrated how substrate coupling and energy supply, under which the motion is performed, leads together with polymerization processes to a general concept of cell motility. However, in all the considerations the biochemical network of cellular proteins (among others, Arp2/3, cofilin, gelsolin, profilin, capZ) which regulates the polymerization of the cytoskeleton has been not taken into account explicitly. This aspect can be very crucial since these proteins may change the rate constants of polymerization and may change the geometry of the cytoskeletal network which hence determine among others velocity and direction of cell locomotion.

Proposal: What I want to study is the influence of polymerization-regulating proteins on cell motility and cell locomotion. In particular, I want to address the question whether a dynamical network of interacting cellular proteins, including a feedback control cycle, similar as found for bacterial chemotaxis, can regulate efficiently the concentration of the polymerization-regulating proteins in space in time and hence control velocity and direction of cell locomotion. The long range achievement of my study is to develop a self-consistent model for cell locomotion which can contribute from a biophysical point of view to our understanding of biological phenomena as are there are embryogenesis, inflammation, wound healing, and the growth of axons.

Scientific Methods: Cellular models, ranging from the molecular to the coarse-grained description will be developed and studied using mathematical methods and computer simulations. Starting from previous studies, I will extend these investigations and include explicitly the concentrations, varying in space and time, of Arp2/3 and other regulatory proteins. Based on a certain set of regulatory proteins, a dynamical control cycle will be constructed, similar as in studies of bacterial chemotaxis. Brownian dynamics and Monte Carlo simulations will be applied to the cellular model in order to investigate various properties as cell velocity, orientation of motion, cellular distributions of concentrations, etc.

Differential Geometry, Group Theory and D-Branes**(Under Construction, a comment for '*D-Branes on Group Manifold*' by Soonkeon NAM)**

Unpublished

Bandung, February 2003

Quantum Information Theory and Group Theory

Presented in the Member of ITB Theoretical Physics Laboratory Routine Discussion 2002

Bandung, 23th June 2002

Abstract: The emerging of quantum logic gates is the consequences of mixing between reversible logic gate and operator in quantum theory. Quantum theory imposes that every operator must be invariant with respect to unitary and similarity transformations. Those transformations affect to the requirement of quantum logic gates, that it must be decomposable to many irreducible representation represented by identity and unitary operator.

Degeneracy Breaking of Hydrogen Atom**(Master Thesis)**

Presented in the Member of ITB Theoretical Physics Laboratory Routine Discussion 2002

Bandung, 7th June 2002

Abstract: The three dimensional rotation group, $SO(3)$, is a symmetry group of the normal hydrogen atom. Each reducible representation of this group can be associated with a degenerate energy level. If this atom is placed in an external magnetic field, the interaction between the orbital magnetic moment with this field will lead to a symmetry breaking where the symmetry group of the atom is a new group distinct from the $SO(3)$ group. This phenomenon describes the normal Zeeman effect, where a degenerate energy level splits into several new energy levels. It is explicitly shown that each of the new energy levels can be associated with an irreducible representation of the new symmetry group

Conclusion: All kinds of symmetry groups used to explain normal Zeeman Effect are compact group. Representation of compact group and finite group representation have similar behavior. Like finite group, all irreducible representation from compact group is equivalent with unitary representation. In the same manner, characteristic of irreducible representation provides its irreducible representation dimension.

Representation space of compact group must be a Hilbert space which is necessary to define orthonormal vectors. This vector space is called separable Hilbert space, and actually has been extensively used in chapter three.

Finally, symmetry group used to describe normal Zeeman Effect as provided in this thesis can be developed to construct symmetry group of anomalous Zeeman Effect.

**Application of Darboux Transformation to Solve Multisoliton Solution on Nonlinear Schrödinger Equation
(Undergraduate Final Project)**

Presented in the Member of ITB Theoretical Physics Laboratory Routine Discussion 2000
Bandung, 23th June 2000

Abstract: Darboux transformation is one of the methods used in solving nonlinear evolution equation. Basically, the Darboux transformation is a linear algebra formulation of the solutions of the Zakharov-Shabat system of equations associated with the nonlinear evolution equation. In this Final Project, the evolution of monochromatic electromagnetic wave in a nonlinear-dispersive optical medium is considered. Using the Darboux transformation, explicit multisoliton solutions (one to three soliton solutions) are obtained from a trivial initial solution.

Conclusion: It can be shown that nonlinear refractive index in fiber optics materials having Kerr-like characteristic will compensate dispersive effect of electromagnetic wave propagating in fiber optics materials. Nonlinear evolution equation of electromagnetic wave, which is because of those effects above, can be solved by Darboux transformation. The advantage of Darboux transformation is multisoliton solution which can be derived from trivial solution. This transformation has similar form with other methods which is used to solve nonlinear differential equation, i.e. Cole-Hopf transformation.

Language Proficiency

- Germany
Basic
- English
As a second language during the study in Indonesia (567 for local TOEFL score)
- Indonesian
Mother language

Reference:

1. Prof. Emeritus. Pantur Silaban Ph.D.
 - Chair of Theoretical Physics Laboratory, Bandung Institute of Technology (ITB), Bandung
 - Ganesha No.10 Street. Phone. (022)-2501645
 - E-mail : psilaban@fi.itb.ac.id
2. Ass. Prof. Freddy Permana Zein Ph.D.
 - Director of Theoretical Physics Laboratory, Bandung Institute of Technology (ITB), Bandung
 - Ganesha No.10 Street. Phone. (022)-2501645
 - E-mail : fpzen@fi.itb.ac.id
3. Prof. The Houw Liong Ph.D.
 - Professor of Computational Physics, Complex System, and Artificial Intellegence at Bandung Institute of Technology (ITB), Bandung
 - Ganesha No.10 Street. Phone. (022)-2501645
 - E-mail : the@fi.itb.ac.id