

Hoang Ngoc Long

Position: Professor of Physics

Head of High Energy Physics section

Vietnamese Academy of Science and Technology

Period covered: 1996 – present



I Scientific Work (in 2008)

1. H. N. Long: Right-handed neutrinos as self-interacting dark matter in supersymmetric economical 3-3-1 model, [arXiv:0710.5833(hep-ph)](2007), to appear in **Advanced Studies in Theoretical Physics**.
2. P. V. Dong, D. T. Huong, N. T. Thuy and H. N. Long: Higgs phenomenology of supersymmetric economical 3-3-1 model, [arXiv:0707.3712(hep-ph)], **Nucl. Phys. B 795**, (2008) 361 -- 384.
3. P. V. Dong and H. N. Long: Neutrino masses and lepton flavor violation in the 3-3-1 model with right-handed neutrinos, [arXiv:0801.4196(hep-ph)](2008), Preprint KEK-TH-1223, **Phys. Rev. D 77**, (2008) 057302 (4 pages).
4. P. V. Dong and H. N. Long: The economical $SU(3)_C \times SU(3)_L \times U(1)_X$ model, [arXiv:0804.3239(hep-ph)](2008), Preprint KEK-TH-1245, **Advances in High Energy Physics, Volume 2008**, Article ID 739492, 74 pages; doi: 10.1155/2008/739492.
5. D. T. Huong and H. N. Long: Neutralinos and charginos in supersymmetric economical 3-3-1 model, [arXiv:0804.3875(hep-ph)](2008), **J. High Energy Phys. 07** (2008) 049 (18 pages).
6. Do T. Huong and Hoang N. Long: Inflationary scenario in the supersymmetric economical 3-3-1 model, [arXiv: 0807.2346(hep-ph)](2008), submitted to Phys. Rev.D.

II Conferences and educational activities

Conferences and Other External Scientific Work

1. Local Organizer of the 2nd, 3rd, 4th and 5th International Schools in Particle Physics, held in Vietnam, from 1995 to 1998.
2. Organizer, The Osaka University - Asia Pacific - Vietnam National University Forum on Frontiers of Basic Science: Towards New Physics - Earth and Space Science - Mathematics, September 27 - 29 (2005), Hanoi, Vietnam

3. Member of International Advisory Committee, Conference on Astro Particle CPV in Topical Physics, Yongpyong APCTP 2007, Yongpyong, Korea, February 21 - 24, 2007 and February 25 - 29, 2008.

4. Member of International Advisory Committee and Organizer of the 5th International Conference on Flavor Physics, (ICFP 2009) to be held in Hanoi, Vietnam Sept. 24 – 30, 2009.

Work With Students

I have many undergraduate students at Universities in Hanoi and Ho Chi Minh cities.

Diploma thesis supervision

I was supervisor for 20 Master Degree and 10 Ph. D. degree. One my student (Le Duc Ninh) successfully defended Ph.D thesis at Univ.of Savoie, France, July 24th, 2008.

Other Teaching Duties

I am an author of 3 books in Physics at University and higher level.

Work With Postdocs

At present I have one postdoc.

III Service activities

Within ICRANet

I visit ICRANet as visiting Professor and I have finished one paper:

H. N. Long: Right-handed neutrinos as self-interacting dark matter in supersymmetric economical 3-3-1 model, [arXiv:0710.5833(hep-ph)](2007), to appear in **Advanced Studies in Theoretical Physics**.

Outside ICRANet

At present our group is translating the book of Professor R. Ruffini and H. Ohanian: **Gravitation and Spacetime**.

IV Other

I am a *referee* for Physical **Review D** and **Review of Modern Physics**, and other Int. Journals and *referee* for Doctor Degree in Physics.

V 2007-2008 List of Publications

Supersymmetric Economical 3 - 3 - 1 Model, P. V. Dong, D. T. Huong, M. C. Rodriguez and H. N. Long, [arXiv: hep-ph/0701137], *Nucl. Phys. B* 772, (2007) 150 - 174.

Photon-axion conversion cross section in a resonant cavity, Dang Van Soa, Hoang Ngoc Long and Le Nhu Thuc, [arXiv: hep-ph/0611258], *Mod. Phys. Lett. A* 22, (2007) 1411-1416.

Neutrino masses in the economical 3-3-1 model, Phung Van Dong, Hoang Ngoc Long and Dang Van Soa, [arXiv: hep-ph/0610381], *Phys. Rev. D* 75, (2007) 073006 (13 pages).

Sfermion masses in the supersymmetric economical 3-3-1 model, P. V. Dong, Tr. T. Huong, N. T. Thuy and H. N. Long, [arXiv:0708.3155(hep-ph)] (2007), *J. High Energy Phys.* 11 (2007) 073 (38 pages).

Right-handed sneutrinos as self-interacting dark matter in supersymmetric economical 3-3-1 model, H. N. Long, [arXiv:0710.5833(hep-ph)](2007), accepted for publication in *Advanced Studies in Theoretical Physics*.

The Economical SU(3)_C - SU(3)_L - U(1)_X Gauge Models (a book), P. V. Dong and H. N. Long, Statistics Publishes, Hanoi (2008), 207 pages.

Higgs phenomenology of supersymmetric economical 3-3-1 model, P. V. Dong, D. T. Huong, N. T. Thuy and H. N. Long, [arXiv:0707.3712(hep-ph)] (2007), *Nucl. Phys. B* 795, (2008) 361 - 384.

Self-interacting dark matter in the beyond standard models, N. Q. Lan, H. N. Long and N. C. Soi, Talk presented in the 7th East Asian Meeting on Astronomy, Fukuoka, Japan, October 2007.

Neutrino masses and lepton ^oavor violation in the 3-3-1 model with right-handed neutrinos, P. V. Dong and H. N. Long, [arXiv:0801.4196(hep-ph)](2008), Preprint KEK-TH-1223, *Phys. Rev. D* 77, (2008) 057302 (4 pages).

The economical SU(3)_C - SU(3)_L - U(1)_X model, P. V. Dong and H. N. Long, [arXiv:0804.3239(hep-ph)](2008), Preprint KEK-TH-1245, *Advances in High Energy Physics*, Volume 2008, Article ID 739492 (2008), 74 pages. Doi: 10.1155/2008/739492.

Neutralinos and charginos in supersymmetric economical 3-3-1 model, D. T. Huong and H. N. Long, [arXiv:0804.3875(hep-ph)](2008), *J. High Energy Phys.* 07 (2008) 049 (18 pages).

Bilepton contributions to the neutrinoless double beta decay in the economical 3-3-1 model, Dang Van Soa, Phung Van Dong, Trinh Thi Huong and Hoang Ngoc Long, [arXiv:0805.4456 (hep-ph)](2008).

Inflationary scenario in the supersymmetric economical 3-3-1 model, Do T. Huong and Hoang N. Long, [arXiv: 0807.2346(hep-ph)](2008), submitted to *Phys. Rev. D*.

Hoang Ngoc Long was born in Thaingbinh, Vietnam in 1952. He received his diploma of Theoretical Physics from St. Peterburg (Leningrad) University in Russia in 1978. Returning Vietnam, he joined the Institute of Physics, National Centre for Science and Technology in Hanoi as a junior researcher. In 1982, he visited the Joint Institute for Nuclear Research (JINR) in Dubna and joined the Laboratory for Theoretical Physics. Returned back Hanoi in 1983, he worked as a researcher at the Centre for Theoretical Physics. He defended Doctor Thesis in 1987 at Institute of Physics, Hanoi. In 1996 he became an Associate Professor of Physics. From 1997 - 2002 he was a deputy director of Centre for Theoretical Physics and a head of group of High Energy section. He became a full Professor of Physics in 2003. Since 1996, he is a chairman of Theoretical Particle Physics section, Graduate School of the Hanoi Institute of Physics.

In the period of 1998-1999, he visited Chuo University, Tokyo as a fellow of the Japanese Society for Promotion of Science (JSPS). Long visited many Institutions around the world such as the ICTP, CERN, KEK, ICRA,...

Long's research has been focused in Theoretical Particle Physics, namely, in phenomenology of the beyond standard models and interface with cosmology. He has constructed a model of electroweak unification based on the $SU(3)_C-SU(3)_L-U(1)_X$ gauge group in which there exist right-handed neutrinos. Recently one of these models carries his name - Long's model. He is the author, co-author of three books. He serves as a referee for journals of American Physical Society and other international journals; and for Doctor Theses.

Long is a senior associate of the Asia Pacific Center for Theoretical Physics (Seoul, Korea), the Abdus Salam ICTP (Trieste, Italy). He organized many international schools and conferences in physics. He gives lectures and supervises Ph.D students for many universities in Vietnam. Now his students are working in main research institutes and universities of Vietnam.