NGUYEN DIEN QUOC BAO
M.Sc. in Nuclear physics

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WORK EXPERIENCE

2015-2017 Teaching Assistant at VNUHCM – University of Science

- Subjects: General nuclear physics, Nuclear theory

2017-Present Researcher and Teaching Assistant at VNUHCM – University of Science

- Subjects: General physics I, General nuclear physics, Nuclear theory, Experimental nuclear physics specialization I.

EDUCATION

2014-2017 Master degree in Atomic, Nuclear and High energy physics at VNUHCM – University of Science

- Thesis: "Plasma acceleration for Carbon ions"
- Wrote a 2D-electrostatic particle-in-cell code to simulate motions of carbon ions in laser wakefield to check the possibility of utilizing this technique for carbon ions

2010-2014 Bachelor of physics at the VNUHCM – University of Science

- Thesis: "Applying the optical potential to calculate the neutron total cross-section for some magic nuclei"
- Calculated the neutron cross-section of magic nuclei in the energy range of 1-100 MeV

PUBLISHCATION

Bao N., Chien L., Tao C., & Lang T. (2018). Analysis of 12C+12C scattering using different nuclear density distributions. Science and Technology Development Journal, 21(3), 78-83.

- Elastic 12C+12C angular distributions at three bombarding energies of 102.1, 112.0 and 126.1 MeV were analyzed in the framework of optical model (OM) and compared to the experimental data. The reality of the OM analysis using the double folding potential depends on the chosen nuclear density distributions. In this work, we use two available models of nuclear density distributions obtained from the electron scattering experiments and the density functional theory (DFT). The OM results show that the former gives better description of the 12C nuclear density distribution than the latter. Therefore, the DFT should be worked on for improving the nuclear density description of 12C in the future.

CONFERENCES

August 2017 "A study of laser wakefield for carbon ions", (*Oral presentation*) at the 12th National Conference on Nuclear Science and Technology (VINANST 12), Nha Trang, Vietnam

- Co-authors: Chary Rangacharyulu, Chau Van Tao
- The possibility of applying laser wakefield to negative carbon ion, C^-, has been studied by numerical simulations. The energy which C^- can gain in some cases is calculated, and some limits to acceleration are studied to understand the results.

October 2016 "A concept of tabletop laser wakefield accelerator of carbon beams for radiation therapy", (*Poster*) at 2016 North American Particle Accelerator Conference (NAPAC16), Chicago, USA

- Co-authors: Chary Rangacharyulu, Chau Van Tao, Ramy Tannous, Mei Zhu Song
- In recent years, laser wake field accelerators have achieved high field gradients to generate a few GeV electron beams in a few centimeters. We are then led to consider if this technology maybe exploited to generate 200-300 MeV/nucleon ion beams to be useful for radiation therapy as compact accelerators. The challenge is to ensure that a non-relativistic ion will see an accelerating field in the electron bubble and achieve desired energies. We started a simulation program to identify optimal wake field plasma densities and laser parameters etc. In this presentation, we report our preliminary results along with our plans for future works.

November 2014 "Applying the optical model to calculate the neutron cross section", (*Poster*) at the 9th Scientific Conference, Vietnam National University Ho Chi Minh city – University of Science

- Co-authors: Chau Van Tao, Phan Thanh Quang
- In this article, the optical model is studied to calculate the total cross-section for neutron with matter from the huge range of mass number (40-238) at the energy of fast neutron from 1 MeV to 100 MeV.

SUMMER SCHOOLS

Oct 31st – Nov 10th 2018 SAKURA Exchange Program in Science administered by Japan Science and Technology Agency in Osaka, Japan

July 18th – 26th 2016 The International School on Real-Time Systems in Ho Chi Minh city organized by IEEE.

July 12nd – 22nd 2015 The 56th Course International School of Quantum Electronics on "Atoms and plasmas in super-intense laser fields" organized by "Ettore Majorana" Foundation and Centre for Scientific Culture in Erice, Italy.

FELLOWSHIPS/AWARDS

2014 The Best Student of Faculty of Physics and Engineering Physics, awarded by VNUHCM-University of Science.

2010 "National excellent student" in physics, awarded by the Vietnamese Government

PROGRAMMING SKILLS/LANGUAGES

Matlab Proficient

C++ Intermediate

MCNP Lower-Intermediate

Geant4 Lower-Intermediate

LANGUAGES

Vietnamese Mother tongue

English IELTS 7.0 (listening: 7.0, reading: 7.5, writing: 6.0, speaking: 7.0)