

Curriculum Vitae

Prof. Dr. Husin Alatas



Place & Date of Birth: Jakarta, 4th June 1971

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EDUCATION

- Bachelor in Physics, Institut Teknologi Bandung, 1995
- Master in Physics, Institut Teknologi Bandung, 1998
- Doctor in Physics, Institut Teknologi Bandung, 2005

OCCUPATION

- Professor of Theoretical Physics, IPB University
- Head of Theoretical Physics Division, IPB University
- Executive Secretary of Center for Transdisciplinary and Sustainability Sciences (CTSS) IPB University
- Former Vice President for Frontier of Sciences, Indonesian Young Academy of Sciences (ALMI) 2018-2020
- Former Indonesian Territorial Representative at the International Commission for Optics (ICO) 2015-2020

DESCRIPTION OF EXPERTISE

Currently interested in Theoretical Cosmology, Quantum Theory, Physics and Modeling of Complex Systems, and Physics of Optics & Photonics and related Materials.

LIST OF PUBLICATIONS (PEER-REVIEWED)

1. **Alatas, H.**, Falah, A., Wibowo, T., Qohhar, M. A., Gunara, B. E., Coordinate-time lapse function of FLRW accelerated expanding universe in dRGT massive gravity theory, (2020) International Journal of Modern Physics D, 29, 2050073. DOI: 10.1142/S021827182050073X
2. Muthoharoh, L., Hardhienata, H., **Alatas, H.**, Modified Asano-Ohya-Khrennikov quantum-like model for decision-making process in a two-player game with nonlinear

- self- and cross-interaction terms of brain's amygdala and prefrontal-cortex, (2020) *Journal of Biological Physics*, **46**, pp 297-307. DOI: 10.1007/s10867-020-09553-6
3. Lolo, J. A., Nikmatin, S., **Alatas, H.**, Prastyo, D. D., Syafiuddin, A., Fabrication of biocomposites reinforced with natural fibers and evaluation of their physio-chemical properties, (2020) *Biointerface Research in Applied Chemistry*, **10**, pp 5803-5808. DOI: 10.33263/BRIAC104.803808
 4. Jenie, R. P., Damayanthi, E., Irzaman, Rimbawan, Sukandar, D., Nurdin, N. M., **Alatas, H.**, Device for noninvasive optical measurement of blood glucose level based on discrete Fourier transform and fast artificial neural network, (2019) *Journal of Medical Devices, Transactions of the ASME*, **13**, 041001. DOI: 10.1115/1.4044336
 5. **Alatas, H.**, Tsauqi, A.K., Heisenberg's uncertainty conditions for various higher order probability distribution functions based on Budiyo–Rohrlich statistical model of quantum mechanics, (2019) *Chinese Journal of Physics*, **60**, pp. 158-166. DOI: 10.1016/j.cjph.2019.05.019
 6. Hardhienata, H., Priyadi, I., **Alatas, H.**, Birowosuto, M.D., Coquet, P., Bond model of second-harmonic generation in wurtzite ZnO(0002) structures with twin boundaries, (2019) *Journal of the Optical Society of America B: Optical Physics*, **36** (4), pp. 1127-1137. DOI: 10.1364/JOSAB.36.001127
 7. Palupi, E.K., Umam, R., Andriana, B.B., Sato, H., Yulianto, B., **Alatas, H.**, Irzaman, Micro-Raman analysis of Ba_{0.2}Sr_{0.8}TiO₃ (barium strontium titanate) doped of chlorophyll of cassava leaf, (2019) *Ferroelectrics*, **540** (1), pp. 227-237. DOI: 10.1080/00150193.2019.1611116
 8. Hardhienata, H., Priyadi, I., Nurjanati, B., **Alatas, H.**, Third harmonic generation in ZnO semiconductor using the simplified bond hyperpolarizability model, (2018) *Journal of Nonlinear Optical Physics and Materials*, **27** (3), art. no. 1850025. DOI: 10.1142/S021886351850025X
 9. Irzaman, Nuraisah, A., Aminullah, Hamam, K.A., **Alatas, H.**, Optical properties and crystal structure of lithium doped Ba_{0.55}Sr_{0.45}TiO₃ (BLST) thin films, (2018) *Ferroelectrics, Letters Section*, **45** (1-3), pp. 14-21. DOI: 10.1080/07315171.2018.1499361
 10. Irzaman, Siskandar, R., Nabilah, N., Aminullah, Yulianto, B., Hamam, K.A., **Alatas, H.**, Application of lithium tantalate (LiTaO₃) films as light sensor to monitor the light status in the Arduino Uno based energy-saving automatic light prototype and passive infrared sensor, (2018) *Ferroelectrics*, **524** (1), pp. 44-55. DOI: 10.1080/00150193.2018.1432842
 11. Irzaman, Dahrul, M., Yulianto, B., Hammam, K.A., **Alatas, H.**, Effects of Li and Cu dopants on the crystal structure of Ba_{0.65}Sr_{0.35}TiO₃ thin films, (2018) *Ferroelectrics, Letters Section*, **45** (4-6), pp. 49-57. DOI: 10.1080/07315171.2018.1537333
 12. **Alatas, H.**, Falah, A.K., Alditia, R., Gunara, B.E., Parameter space for range of bare graviton mass in an FLRW universe based on dRGT massive gravity theory, (2017) *Annals of Physics*, **387**, pp. 299-316. DOI: 10.1016/j.aop.2017.10.011
 13. Nugraha, S.N., Batubara, I., Rahmat, M., **Alatas, H.**, Fluorometric based procedure for measuring curcumin concentration in commercial herbal medicines, (2017) *Optik*, **149**, pp. 125-131. DOI: 10.1016/j.ijleo.2017.09.029
 14. **Alatas, H.**, Nurhimawan, S., Asmat, F., Hardhienata, H., Dynamics of an agent-based opinion model with complete social connectivity network, (2017) *Chaos, Solitons and Fractals*, **101**, pp. 24-32. DOI: 10.1016/j.chaos.2017.05.016

15. **Alatas, H.**, Sumaryada, T.I., Ahmad, F., Characteristics of local density of optical states in a tapered grating waveguide at resonant states, (2016) *Optik*, **127** (5), pp. 2683-2687. DOI: 10.1016/j.ijleo.2015.11.202
16. Sugihakim, R., **Alatas, H.**, Application of a Boltzmann-entropy-like concept in an agent-based multilane traffic model, (2016) *Physics Letters, Section A: General, Atomic and Solid State Physics*, **380** (1-2), pp. 147-155. DOI: 10.1016/j.physleta.2015.09.048
17. Irzaman, Siskandar, R., Aminullah, Irmansyah, **Alatas, H.**, Characterization of Ba_{0.55}Sr_{0.45}TiO₃ films as light and temperature sensors and its implementation on automatic drying system model, (2016) *Integrated Ferroelectrics*, **168** (1), pp. 130-150. DOI: 10.1080/10584587.2016.1159537
18. Kirana, F.A., **Alatas, H.**, Husein, I.S., A Coupled Phase-Temperature Model for Dynamics of Transient Neuronal Signal in Mammals Cold Receptor, (2016) *Journal of Biophysics*, **2016**, art. no. 2754249. DOI: 10.1155/2016/2754249
19. Iqbal, M., Fuad, M., Sukoco, H., **Alatas, H.**, Hybrid Tree-like Mesh topology as new wireless sensor network platform, (2016) *Telkomnika (Telecommunication Computing Electronics and Control)*, **14** (3), pp. 1166-1174. DOI: 10.12928/TELKOMNIKA.v14i3.2279
20. **Alatas, H.**, Prayuda, D.D., Syafiuddin, A., Parlindungan, M., Suhendra, N.O., Pawitan, H., Simple model for simulating characteristics of river flow velocity in large scale, (2015) *International Journal of Geophysics*, **2015**, art. no. 520893. DOI: 10.1155/2015/520893
21. Rahmat, M., Maulina, W., Isnaeni, Miftah, D.Y.N., Sukmawati, N., Rustami, E., Azis, M., Seminar, K.B., Yuwono, A.S., Cho, Y.H., **Alatas, H.**, Development of a novel ozone gas sensor based on sol-gel fabricated photonic crystal, (2014) *Sensors and Actuators, A: Physical*, **220**, pp. 53-61. DOI: 10.1016/j.sna.2014.09.020
22. Negara, T.P., **Alatas, H.**, Garnadi, A.D., Nurdiati, S., Transmission characteristics of a microscale dielectric slab waveguide device with a deep groove and an embedded metallodielectric grating at low terahertz frequency, (2014) *Optik*, **125** (13), pp. 3134-3137. DOI: 10.1016/j.ijleo.2013.12.015
23. Nuayi, A.W., **Alatas, H.**, Husein, I.S., Rahmat, M., Enhancement of photon absorption on Ba_xSr_{1-x}TiO₃ thin-film semiconductor using photonic crystal, (2014) *International Journal of Optics*, **2014**, art. no. 534145. DOI: 10.1155/2014/534145
24. Rahmat, M., Maulina, W., Rustami, E., Azis, M., Budiarti, D.R., Seminar, K.B., Yuwono, A.S., **Alatas, H.**, Performance in real condition of photonic crystal sensor based NO₂ gas monitoring system, (2013) *Atmospheric Environment*, **79**, pp. 480-485. DOI: 10.1016/j.atmosenv.2013.05.057
25. Sulaiman, A., Zen, F.P., **Alatas, H.**, Handoko, L.T., Dynamics of DNA breathing in the Peyrard-Bishop model with damping and external force, (2012) *Physica D: Nonlinear Phenomena*, **241** (19), pp. 1640-1647. DOI: 10.1016/j.physd.2012.06.011
26. **Alatas, H.**, Hermanudin, D., Semi-discrete DNA breather in Peyrard-Bishop-Dauxois model with fifth-order-approximation Morse potential, (2012) *Chaos, Solitons and Fractals*, **45** (9-10), pp. 1231-1238. DOI: 10.1016/j.chaos.2012.06.012
27. Sulaiman, A., Zen, F.P., **Alatas, H.**, Handoko, L.T., The thermal denaturation of the Peyrard-Bishop model with an external potential, (2012) *Physica Scripta*, **86** (1), art. no. 015802. DOI: 10.1088/0031-8949/86/01/015802
28. **Alatas, H.**, Iskandar, A.A., Tjia, M.-O., Structure dependent variations of group velocity, energy loss and confinement in a regular grating waveguide, (2012) *Journal of Nonlinear Optical Physics and Materials*, **21** (1), art. no. 1250009. DOI: 10.1142/S0218863512500099

29. **Alatas, H.**, Dynamics of Jacobi's elliptic spatial waves in a nonlinear optical grating, (2011) *Physical Review A - Atomic, Molecular, and Optical Physics*, **83** (4), art. no. 043830. DOI: 10.1103/PhysRevA.83.043830
30. **Alatas, H.**, Hoekstra, H.J.W.M., Iskandar, A.A., Tjia, M.-O., Group-index and resonant field enhancement in a symmetric double-sided grating waveguide, (2011) *Journal of the Optical Society of America A: Optics and Image Science, and Vision*, **28** (6), pp. 1197-1203. DOI: 10.1364/JOSAA.28.001197
31. Sulaiman, A., Zen, F.P., **Alatas, H.**, Handoko, L.T., Anharmonic oscillation effect on the Davydov-Scott monomer in a thermal bath, (2010) *Physical Review E - Statistical, Nonlinear, and Soft Matter Physics*, **81** (6), art. no. 061907. DOI: 10.1103/PhysRevE.81.061907
32. **Alatas, H.**, Iskandar, A.A., Tjia, M.-O., Tailoring spatial soliton characteristics and its dynamical behaviors in nonlinear reflection gratings, (2010) *Journal of the Optical Society of America B: Optical Physics*, **27** (2), pp. 238-245. DOI: 10.1364/JOSAB.27.000238
33. **Alatas, H.**, Iskandar, A.A., Hoekstra, H.J.W.M., Tjia, M.-O., Performance changes of a grating waveguide at resonance wavelengths next to its band-edges due to modified edge sections, (2010) *Journal of the Optical Society of America B: Optical Physics*, **27** (12), pp. 2743-2749. DOI: 10.1364/JOSAB.27.002743
34. **Alatas, H.**, Kandi, A.A., Iskandar, A.A., Tjia, M.O., New class of bright spatial solitons obtained by Hirota's method from generalized coupled mode equations of nonlinear optical Bragg grating, (2008) *Journal of Nonlinear Optical Physics and Materials*, **17** (2), pp. 225-233. DOI: 10.1142/S021886350800410X
35. **Alatas, H.**, Combined solitons in generalized coupled mode equations of a nonlinear optical Bragg grating, (2007) *Physical Review A - Atomic, Molecular, and Optical Physics*, **76** (2), art. no. 023801. DOI: 10.1103/PhysRevA.76.023801
36. **Alatas, H.**, Mayditia, H., Hardhienata, H., Iskandar, A.A., Tjia, M.O., Single-frequency refractive index sensor based on a finite one-dimensional photonic crystals with two defects, (2006) *Japanese Journal of Applied Physics, Part 1: Regular Papers and Short Notes and Review Papers*, **45** (8 B), pp. 6754-6758. DOI: 10.1143/JJAP.45.6754
37. **Alatas, H.**, Iskandar, A.A., Tjia, M.O., Valkering, T.P., Rational solitons in deep nonlinear optical Bragg grating, (2006) *Physical Review E - Statistical, Nonlinear, and Soft Matter Physics*, **73** (6), art. no. 066606. DOI: 10.1103/PhysRevE.73.066606
38. **Alatas, H.**, Iskandar, A.A., Tjia, M.O., In-gap optical bistabilities of deep nonlinear Bragg grating with symmetric three-layer unit cells, (2006) *Journal of Nonlinear Optical Physics and Materials*, **15** (3), pp. 345-354. DOI: 10.1142/S021886350600330X
39. **Alatas, H.**, Iskandar, A.A., Tjia, M.O., Valkering, T.P., Optical sensing and switching device based on a finite deep nonlinear Bragg grating with a mirror, (2005) *Journal of Nonlinear Optical Physics and Materials*, **14** (2), pp. 259-272. DOI: 10.1142/S0218863505002694
40. **Alatas, H.**, Iskandar, A.A., Tjia, M.O., Valkering, T.P., Dark, antidark soliton-like solutions and their connection in a finite deep nonlinear Bragg grating with a mirror, (2004) *Journal of Nonlinear Optical Physics and Materials*, **13** (2), pp. 259-274. DOI: 10.1142/S0218863504001827
41. **Alatas, H.**, Iskandar, A.A., Tjia, M.O., Valkering, T.P., Analytic study of stationary solitons in deep nonlinear Bragg grating, (2003) *Journal of Nonlinear Optical Physics and Materials*, **12** (2), pp. 157-173. DOI: 10.1142/S0218863503001304

42. **Alatas, H.**, Iskandar, A.A., Tjia, M.O., Bright and dark solitary waves in Kerr medium with higher order linear and nonlinear dispersions, (2001) *Journal of Nonlinear Optical Physics and Materials*, **10** (2), pp. 223-231. DOI: 10.1142/S0218863501000565