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Research:

Since August 2004: Assistant and then associate professor at the Department of Physics of the University of Utah. I have been working in the gamma ray group with the VERITAS collaboration until 2012. Also I have initiated the ongoing interest in the possibilities of implementing intensity interferometry with Cherenkov telescope arrays, a project in which I remain currently involved. In 2012 I left the VERITAS collaboration and started working in part on solid state physics, taking advantage of my experience in computation (atoms on graphene) and in part on stochastic mechanics in relation to scale relativistic ideas on the foundation of quantum mechanics. As time went, I tended to dedicate most of my time on this latter topic. However the lack of success with publications pushed me to start activities in new directions. In 2019, encounters led me to consider the problem of thermal noise in the optics of gravitational wave detectors. I coordinated the Gravitational Radiation Research Group at the University of Utah, a member of the LIGO Scientific Collaboration since August 2019. As this activity failed to attract external funding, it is progressively being phased out. I now continue my work on Scale Relativity and my involvement in Stellar Intensity Interferometry within the VERITAS collaboration.

August 1998-July 2004: Postdoctoral research at the Department of Physics and Astronomy of Iowa State University for the GRANITE and VERITAS collaborations with Professor Krennrich including: studies of diffuse γ -ray emission from the galactic plane; design of VERITAS front-end electronics; development of instrumentation for detecting extremely fast γ -ray bursts (SGARFACE); Cherenkov telescope calibration techniques; observations to detect annihilation radiation from WIMP candidates from globular clusters; observations of M87

November 1997-June 1998: Postdoctoral research at the ICRR of Tokyo University with Professor Kifune, head of the CANGAROO VHE gamma-ray collaboration. My work included 3.8m telescope data analysis and design of the optics of the new CANGAROO detectors.

June 1997- August 1997: Quality control management for the department of Scientific Computation of ETPM (Entreprise de Travaux Pétroliers Maritimes).

June 1996-May 1997: Permanent physicist on site for the CAT (Cherenkov Atmospheric Telescope) experiment at the start-up phase. This position was funded by LPC of the Collège de France.

June 1993-June 1996: Thesis work directed by Professor B. Degrange at the LPNHE of the Ecole Polytechnique. *Subject:* “Conception and construction of a telescope for very high energy (100GeV-10TeV) gamma astronomy using the atmospheric Cherenkov radiation (CAT experiment)”. Thesis presented on June 4th 1996; given the title of Doctor of Physics at the Paris XI University with honorable mention and the congratulations of the jury.

Recent teaching experience:

Spring 2024 : No teaching duties

Fall 2023: Physics 4760, Introduction to thermal physics and statistical mechanics

Spring 2023 : Physics 3410 , Introduction to Modern Optics

Fall 2022: Physics 5450, Introduction to quantum mechanics

Spring 2022 : Physics 3410, Introduction to Modern Optics

Fall 2021: Physics 5110, Introduction to particle physics

Spring 2021 : Physics 3740, Introduction to Modern Physics

Fall 2020: Physics 5450, Introduction to quantum mechanics

Spring 2020 : Physics 3740, Introduction to Modern Physics

Physics 2020, Introduction to algebra based physics II

Fall 2019 : Physics 3210 - Physics for Scientists I

Spring 2019 : Physics 5110 - Introduction to Nuclear and Particle Physics

Fall 2018 : Physics 3210 - Physics for Scientists I

Spring 2018 : Physics 5110 - Introduction to Nuclear and Particle Physics

Fall 2017 : Physics 1500, Preparation to college physics

Spring 2017 : Physics 5110 - Introduction to Nuclear and Particle Physics

Fall 2016 : Physics 1500, Preparation to college physics

Spring 2016 : Physics 5110 - Introduction to Nuclear and Particle Physics

Fall 2015 : Physics 6730, Computational Physics I

Spring 2015 : Physics 6730, Computational Physics I

Academic Studies:

1991-1992: DEA “Champs Particules Matières” at Paris XI University.

1990-1991: Maîtrise in Fundamental Physics at Paris XI University.

Training session: (3 months) in the NSCL of Michigan State University.

1987-1990: DEUG SSM and Licence in Fundamental Physics at Paris XI University.

Training session: (1 month) at Laboratoire d’Optique de l’Observatoire de Marseilles.

Recent funding:

- 2022: PI: D.Kieda, CoPI: LeBohec and others, University of Utah Particle Astrophysics Research Group Grant (VERITAS, HAWC, CTA), \$1,200,423

- 2022: PI: D.Kieda, CoPI: LeBohec and others, MRI Consortium: Development of Upgraded Stellar Intensity Interferometry Instrumentation for the VERITAS Observatory ~\$1,000,000

- 2019: Together with Vikram Deshpande and Keunhan Park (Mechanical Engineering), we gratefully obtained a \$24,000 Seed Grant Funding from the University of Utah to work on gravitational detector thermal noise.

- 2016: Together with E.Mishchenko, we were awarded a MRSEC Seed grant of \$5,000 to study the interaction of adatoms on graphene .

- 2012: PI on an awarded SGER grant of \$55,624 for a proposal entitled “Prototype Test Bench for Stellar Intensity Interferometry with Atmospheric Cherenkov Gamma Ray Telescopes”

Recent refereed publications

- Seth Linker et al., ”Crystallite growth limits in amorphous oxides”, 2024 Class. Quantum Grav. 41 025003

- J. Neilson et al., ”Improving the Precision of E-beam Evaporation for Nanolayered Coatings”, 2022, under consideration by MDPI Coatings for publication

- T.LeBohec, ”The virial theorem for non-differentiable dynamical paths”, arXiv:2209.06856

- Brecken Larsen et al., ”Crystallization in Zirconia Film Nano-Layered with Silica”, Nano-materials (Basel), 2021 Dec 19;11(12):3444. doi: 10.3390/nano11123444.

- A. U. Abeysekara et al., ”Demonstration of stellar intensity interferometry with the four VERITAS telescopes”, Nature Astronomy volume 4, pages1164-1169 (2020)

- Saeed Naif Turki Al-Rashid, Mohammed A. Z. Habeeb, T. LeBohec, "Riccati equations as a scale-relativistic gateway to quantum mechanics", *Foundations of Physics* (2020) 50:191-203
- M.-H. Teh, L. Nottale and S. LeBohec, "Scale relativistic formulation of non-differentiable mechanics", *Eur. Phys. J. Plus* (2019) 134: 438; DOI: 10.1140/epjp/i2019-12840-6
- S. LeBohec, "Scale Relativistic signature in the Brownian motion of micro-spheres in optical traps", *International Journal of Modern Physics A*, Vol. 32, No. 26, 1750156 (2017)
- N. Matthews, D. Kieda, and S. LeBohec, "Development of a Digital Astronomical Intensity Interferometer: laboratory results with thermal light", *Journal of Modern Optics*, 1-9. DOI: 10.1080/09500340.2017.1360958
- S. LeBohec, J.Talbot & E. Mischenko "Suppression of diffusion of hydrogen adatoms on graphene by effective adatom interaction", *Phys. Rev. B* 93, 115402 (2016)
- S. LeBohec, J.Talbot & E. Mischenko "Attraction-repulsion transition in the interaction of adatoms and vacancies in graphene", *Phys. Rev. B* 89, 045433 (2014)
- Godambe, S. for the VERITAS collaboration, "Discovery of very high energy gamma rays from 1ES1044+122", to be submitted to the *Astrophysical Journal*.
- Vincent, S., Hui, M. & LeBohec, S., "Multi epoch study of the gamma ray emission in the M87 black hole magnetosphere", to be submitted to *MNRAS*
- Janvida Rou, Paul D. Nuez, David Kieda, Stephan LeBohec, "Monte-Carlo simulation of stellar intensity interferometry", *Mon. Not. R. Astron. Soc.*, 430, 3187-3195 (2013)