外国人客員所員を経験して

Igor Herbut Department of Physics, Simon Fraser University iherbut@sfu.ca

I spent five wonderful months as a visitor in the Professor Masaki Oshikawa's group at the ISSP of the University of Tokyo. Although this was my sixth visit to Japan, I have never in the past stayed this long, and in particular never lived in Kashiwa. Any initial apprehensions of mine that may have existed about how such a long stay would proceed were quickly dispersed and I enjoyed a great time both on professional and personal level. During my stay there were several exciting conferences which conveniently took place on the ISSP's sixth floor, at which I had an opportunity not only to catch many interesting presentations, but also to discover that some of my old friends were in attendance and so to enjoy many good discussions. Professor Oshikawa's group would also hold weekly meetings that provided an ample opportunity for me to get acquainted with the activities of the graduate students and frequent visitors. We have this way started a discussion of the contentious issue of possible defect-mediated transition in the two-dimensional Lebwohl-Lasher model, and in particular on how to possibly improve the previous numerical study of the model by Ueda and Oshikawa. With the visiting professor Yuanming Lu I have started a collaboration on the topological aspects of the SO(4) to SO(3) spontaneous symmetry breaking in twodimensional Dirac systems. I believe both of these projects offer opportunities for further theoretical discoveries in near future, and I am eager to continue the research beyond my stay at ISSP.

Several present and former collaborators visited us during my stay, gave seminars, and participated in the scientific life of the ISSP. My postdoctoral assistant Dr. SangEun Han spent a month and a half in Kashiwa. During this time we finished and published a paper on

= = =

the critical Gross-Neveu-Yukawa theory of the SO(3) tensor order parameter coupled to Dirac fermions. Professor Bitan Roy (Lehigh University, USA) gave an interesting seminar on new non-Hermitian field theories, and professor Michael Scherer (Bochum University, Germany) presented his high-profile work on ordered phases at infinite temperatures, featured on the cover of one of the January's issues of the Physical Review Letters. I also gave seminars on my SO(8) unified theory of two-dimensional interacting Dirac fermions both at the University of Tokyo's ISSP and the Institute of Industrial Science, as well as at the Sophia University and RIKEN. I also had an opportunity to present this work at the conference on quantum materials and quantum information at Okinawa Institute of Science and Technology which I attended in November 2024.

What made the stay exceptionally pleasant on personal level was also the exceptional hospitality of Mrs. Atsuko Tsuji of and Oshikawa's group, Mrs. Shiho Suzuki of Sugino's group, and Mrs. Yuko Ishiguchi from the ISSP's International Liaison Office, and my host, professor Masaki Oshikawa. Their constant care, generosity, and infinite patience for many small issues that arise daily in every visitor's life made me feel truly at home in Kashiwa, and as a part of a family. I am very much looking forward to a time in future to return.







