

Tribute to the memory of Dionys Baeriswyl

We deeply regret to inform you that our colleague Dionys has passed away on August 9, 2023, after a courageous battle against an insidious disease. Right up to the time of his hospitalization, Dionys was still passionately pursuing his research in theoretical physics. He continued his work even in hospital where he finalized a paper on the formation of quartets in fermion systems. He won the race and submitted his last paper that is meanwhile published in *Physical Review B* 108, 115133 (2023).

Dionys Baeriswyl was born in 1944 in Alterswil in the canton of Fribourg. After completing his studies in theoretical physics at the University of Basel in 1969, he obtained his doctorate from the University of Geneva in 1973. Soon after, he was hired by the RCA laboratory in Zurich where he soon obtained a secured position. Nevertheless, in 1982 Dionys decided to aim for a new experience and scientific stimulus. He became a scientific “freelancer” and moved around the globe between different research centers, like the Max-Planck-Institute in Stuttgart, the Orsted Institute Nordita, Brown Boveri, IBM Rüschlikon, USC Los Angeles, CNLS Los Alamos, ICTP Trieste, ETHZ, and ISI Torino.

Despite of the many detours, Dionys did not lose track of developing his academic career and in 1985 he was awarded the *venia legendi* of the ETHZ for his thesis "Theoretical Aspects of Conducting Polymers". Finally, in 1989 Dionys Baeriswyl was appointed as a full professor and director of the Institute of Theoretical Physics at the University of Fribourg where he remained until his retirement in 2012 and beyond. His Alma Mater benefitted greatly from the many international contacts Dionys had made, the reputation he had acquired and the experience he had accumulated. Dionys also made tireless efforts to reform the curricula and to organize the best possible working conditions for his students and doctoral candidates. Moreover, Dionys fulfilled his administrative duties and served as a Dean of the faculty of Science between 2002 and 2004 and President of the Physics Department from 2007 to 2009.

Dionys Baeriswyl conducted his research with passion and lucidity. His early work was devoted to the electronic properties of conjugated polymers and other quasi-one-dimensional electronic systems, emphasizing the importance of electronic correlations in these systems. Subsequently, he worked on variational-wave-function approaches to one- and two-dimensional correlated electron systems, applying them to the Peierls and the Mott transitions as well as to superconductivity in the high- T_c cuprates. In the course of this work, he introduced the variational wave function now known as the “Baeriswyl wave function,” which can be viewed as the strong-coupling complement to the Gutzwiller wavefunction. While the Gutzwiller wavefunction incorporates correlation effects into the free-electron state, the Baeriswyl wavefunction incorporates itinerant electron movement into a localized, strongly correlated insulating state.

Dionys was also one of the founding member of the National Competence Center in Research (NCCR) on materials with novel electronic properties (MaNEP). Moreover, he was very active in organizing numerous conferences and participated in establishing new series of meetings at Gwatt (Switzerland), at the ISI Foundation (Turin, Italy) and at Evora (Portugal).

Above all, Dionys was an excellent teacher and a very devoted supervisor of his PhD students and young researchers which he used to train at the cutting edge of advances in theoretical

physics. He also frequently exposed them to the advice and criticism of his numerous visitors from around the world. For several of his former students, this has been the starting point for their own successful academic career.

Dionys Baeriswyl was not only a very devoted researcher, he was also very passionate about hiking in the Swiss mountains and a skilled piano player. He liked to share his love for hiking with his colleagues which he frequently took on excursions in the Fribourg mountains. While this experience might have been rather exhausting for some of his visitor, it was typically followed by an invitation to a good restaurant. A memorable event was also when the late Prof. Kazumi Maki from USC Los Angeles had visited Fribourg and after giving an inspiring lecture took his violin and asked Dionys to accompany him on the piano to play a few concerti.

Dionys Baeriswyl retired as a Professor at the University of Fribourg at the end of 2012. Not being burdened anymore with administrative tasks, he remained an active researcher in theoretical physics and maintained his international collaborations. In particular, he assisted his colleague and friend Alvaro Ferraz in the development of the International Institute of Physics in Natal, Brazil. Every spring, he visited this research center, where he was awarded the title of Distinguished Professor in 2013.

Dionys Baeriswyl was a unique character that was liked by his students and assistants, and highly appreciated by his colleagues. Everyone that has come in contact with him will remember him as an endearing, kind-hearted person, endowed above all with great generosity. We will miss Dionys.

Physics Department

