

Obituary Aloysio Janner (1928-2016)



On January 27th 2016 Aloysio Janner passed away. He was one of the founding fathers of the science of aperiodic crystals. After his PhD from the University of Zürich, he was for a while high-school teacher in Ticino, the Italian-speaking region of Switzerland. Afterwards he joined the research institute Batelle in Geneva, where he worked among others with Edgar Ascher. They gave an analysis of space groups as group-theoretical extensions, and started a research on the space-time symmetry of electro-magnetic fields. In 1963 he became the head of the group Theoretical Solid State Physics of the Catholic University of Nijmegen in The Netherlands. There he continued his research of space-time symmetry. I was his first PhD student and together we derived the first list of 4-dimensional space-time groups. In 1972 Aloysio met Pim de Wolff at a conference in Kyoto. De Wolff had discovered that anhydrous sodium carbonate has a phase without lattice periodicity but with sharp diffraction spots. He proposed a 4-dimensional description of this phase. Aloysio and Pim realised that the 4-dimensional space groups needed were exactly the space-time groups we had studied. They were now called superspace groups. Together we developed the so-called superspace approach to incommensurate modulated phases, and could later generalise this to other aperiodic structures, like occupation modulated systems, magnetic structures, misfit and composite structures and quasicrystals.

After his formal retirement he changed his interest to another, but related, topic, the symmetry of snow crystals, biomolecules and viruses. These systems have often scale symmetries similar to those of aperiodic tilings and quasicrystals. In this field he published a series of papers. And there are still 3 papers waiting to be published.

Aloysio was very satisfied by the recognition of his work. He received the Aminoff Prize of the Swedish Academy of Science in 1998 and the Ewald Prize of the IUCr in 2014.

Aloysio was an enthusiastic and friendly person. He stimulated very much his

PhD students, including experimentalists who he coached together with an experimental colleague. With them he studied, for example, the morphology of aperiodic crystals. With these experimentalists he could solve the old problem of the indexing of the facets of calaverite. This compound is aperiodic and the morphology needs 4 indices, just as its diffraction pattern.

Many of us will remember his vivid interventions at conferences. Our community has lost a remarkable member.

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