Editorial

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Ten years ago, CHIMIA issue 6/2008, 'Chirality' was also the topic of a special issue. At that time, the focus was some of the state-of-the-art research in Switzerland with various articles giving an overview ranging from stereoselective synthesis, enantioselective catalysis, chiroptical methods to chirality induced on achiral surfaces and showing that chirality is not only related to carbon chemistry.

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The present issue focuses on a broad spectrum of research which is presented at a workshop held in Telluride, Colorado (USA) rather regularly every other year on 'Electronic and Magnetic Properties of Chiral Structures and their Assemblies', organized by Ron Naaman, Dave Waldeck, and Vladimiro Mujica. Telluride is a small village in the Rocky Mountains at an altitude of about 2700 m, formerly a mining place, thus the name, about a five-hour drive southwest of Denver. The picture shows Telluride as viewed from the skiing area called 'Mountain Village'. Besides the more 'physics' inspired title of the workshop, the selected topics presented cover a very wide range, chiral-induced spin selectivity being a hot topic with recent extra attention,[1] and further topics from chiral induction in peptide nucleic acid (PNA) duplexes caused by achiral groups, parity violation in small chiral molecules, chirality and spin in general, adsorption on surfaces, historical aspects of the comparison of heterochiral crystals and their homochiral counterparts by Wallach and Liebisch, chiroptical properties, and Coulomb explosion imaging as a new method to determine the absolute configuration in a direct manner. Some of the topics covered in the CHIMIA issue ten years ago are still active fields of research, for example the synthesis and enantioseparation of chiral molecules which are the primary steps to study effects caused by chirality, including possibly parity violation and Coulomb explosion imaging and many more.

Indeed parity violation in chiral molecules is an active field of current research relating stereochemistry to high energy physics[2,3] and an even much wider range of phenomena related to symmetries and asymmetries in general,[4] including in particular the asymmetry expressed in biomolecular homochirality.[5,6] We might conclude here with a citation from the concluding remarks in the Nobel lecture of Vladimir Prelog: "*The time at my disposition also does not permit me to deal with the manifold biochemical and biological aspects of molecular chirality. Two of these must be mentioned, however, briefly. The first is the fact that although most compounds involved in fundamental life processes such as sugars and amino acids, are chiral and although the energy of both enantiomers and the probability of their formation in an achiral environment are equal, only one enantiomer occurs in Nature; the enantiomers involved in life processes are the same in men, animals, plants and microorganisms, independent on their place and time on Earth. Many hypothesis have been conceived about this subject, which can be regarded as one of the first problems of molecular theology. One possible explanation is that the creation of living matter was an extremely improbable event, which occurred only once*".[6] Since then, parity violation and spin selectivity have provided new outlooks.

We hope that you will enjoy reading this issue. It is a pleasure to thank all authors who contributed to this issue for their excellent work.

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It is with great pleasure that the Editorial Board of CHIMIA warmly thanks Prof Jürgen Stohner for his efforts in the planning and successful realisation of this interesting issue on 'CHIRALITY - Symmetries and Asymmetries'.