

## **Molecular Sciences in all Frontiers**

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The United Nations have declared 2014 as the International year of Crystallography, exactly when we celebrate the 100th anniversary of the first structure elucidated to the atomic level by x-ray diffraction in a single crystal of sodium chloride by the Braggs – father and son. It is therefore enlightening to overview the huge impact that crystallography has had on essentially all areas of natural sciences and engineering. The understanding of the peculiarities of the chemical bonding and molecular structure has revolutionized our ability to master the composition of matter, be it inorganic or organic, biological or solid state materials. The impacts of molecular elucidation on science and technology have dramatically changed human welfare, from life saving vaccines and pharmaceuticals to the myriad of new materials that make our daily lives so much easier. The understanding of the functional properties of materials, including the living matter, depends necessarily of the elucidation of its molecular structures to atomic resolution. In Brazil, crystallographic research was established originally affiliated to mineralogy. In the 1960s, Prof Yvonne Mascarenhas pioneered the introduction of structural studies of small molecules with single crystals as well as powder diffraction. Protein crystallography only started in the 1990s, boosted by the establishment of the first synchrotron radiation source in the southern hemisphere – LNLS - in 1997. The Brazilian Association of Crystallography was created in 1972 and the scientific production in this field has strongly grown in this century, with 14,400 publications in international peer reviewed journals bearing Brazil as the country institutional affiliation of at least one author, in the period 2000-2013. Other indicators will be presented, as well as the future perspectives of the Brazilian science and crystallography in particular.