GI-MS48-05 | Resolution of Crystallographic Problems Using the Bilbao Crystallographic Server

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Operating since 1997, the *Bilbao Crystallographic Server* (www.cryst.ehu.es) is a free web site that grants access to specialized databases and tools for the resolution of different types of problems related to crystallography, solid-state physics and structural chemistry. The server is built on a core of databases that contain crystallographic data of space, magnetic, subperiodic, double, plane and point groups, their representations and group-subgroup relations [1-2]. The programs available on the Bilbao Crystallographic Server aim to bring the potential of symmetry and group theory to those users who are not necessarily experts in this matter but want to benefit from them in their studies. Therefore, the purpose of this contribution is to show by illustrative examples the utility of the server in the resolution of different common problems that many theoretical and experimental crystallographers face everyday. Different systems such as layered materials, magnetic structures, ferroelectric materials, topological insulators and modulated structures can be analyzed by our software. A wide range of topics are covered by our programs, from fundamentals of crystallography to more advanced problems such as the prediction of phase transitions, identification of ferroic materials, detection of false symmetry assignments, planification of Raman scattering experiments or to cross-check different experimental and/or theoretical structural models of the same phase coming from different sources. Some of these topics will be discussed in this contribution.

[1] M. I. Aroyo et al. (2006) Z. Kristallog., 221, 15-27
[2] M. I. Aroyo et al. (2011) Bulgarian Chemical Communication, 43(2), 183-197