1098-92-182 **Sergey V. Krivovichev*** (s.krivovichev@spbu.ru), Department of Crystallography, St.Petersburg State University, University Emb. 7/9, St. Petersburg, 199034, Russia. *Quantitative Measures of Complexity of Crystal Structures.*

Discovery of diffraction of X-rays on crystals opened up a new era in our understanding of nature, leading to a multitude of striking discoveries of structures and functions of matter on the atomic and molecular scales. Over the last hundred years, about 150 000 of inorganic crystal structures have been elucidated and visualized. The advent of new technologies such as area detectors and synchrotron radiation led to solution of structures of unprecedented complexity. However, the very notion of structural complexity of crystals lacked its unambigous quantitative definition until recently. It was demonstrated in [Acta Cryst. 2012, A68: 393-398; Min. Mag. 2013, 77: 275-326; Angew. Chem. Int. Ed. 2014, 53: 654-661] that representation of a crystal structure in terms of its quotient graph allows to use information entropies of graphs as a measure of static structural complexity of crystals. To describe structural complexity in algorithmic (dynamic) terms one has to develop more sophisticated techniques and there is still no accessible and straightforward approach to construct universal measures of algorithmic complexity that are applicable to any crystal structure. Some of the possible solutions of the problem will be outlined. (Received January 25, 2014)