

Proceedings of the
12th International Conference
on Quasicrystals (ICQ12)

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Editors of the Proceedings:

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The 12th International Conference on Quasicrystals was a satellite meeting of 28th European Crystallographic Meeting and was organized as a joint action of International Union of Crystallography and Committee of Crystallography at Polish Academy of Sciences.

Preface

Since the discovery of quasicrystals was announced in the literature in 1984, the community of physicists, chemists, metallurgists, material scientists, and mathematicians involved in quasicrystals research met for the twelfth time. The triennial International Conference on Quasicrystals (ICQ) was held in Kraków, following previous meetings in Les Houches, Beijing, Vista-Hermosa, St. Louis, Avignon, Tokyo, Stuttgart, Bangalore, Ames, Zurich, and Sapporo.

The ICQ12 conference gathered 160 scientists from 22 countries working on quasicrystals and related topics. In total 56 talks were given (including 24 invited lectures) and 84 poster presentations were shown. A wide variety of subjects was covered during the conference, starting from structural investigations, surface studies, and physical properties to frontier topics like soft matter (colloids) or optical networks quasicrystals. Oral presentations were grouped in various scientific sessions:

- *Formation, growth, stability*
- *Surface and surface related*
- *Simulations nonmetallic/colloids*
- *Structure*
- *Engineering and technical*
- *Mathematics*
- *Mixed subjects (optical lattices, quasicrystals in silicon, phase transitions)*
- *Intermetallics — structure and properties*
- *Electronic and transport properties: theory and simulations*
- *Simulations — metallic*
- *Magnetism related*
- *Structure & stability*
- *Related topics (modulated structures, mechanical properties, hydrogenated quasicrystals)*

One session was fully dedicated to AGH University of Science and Technology Honorary Doctorate to Dan Shechtman, the Nobel Prize winner from 2011 for the discovery of quasicrystals. During the celebration, Jean-Marie Dubois, who was a co-promoter of the doctorate, presented a doctoral laudation and the Laureate gave a lecture. Dan Shechtman met also 500 pupils from high schools of the Kraków region to introduce them to the field of quasicrystals and give a message of encouragement to enter the scientific world.

Very interesting tutorial presentations on mathematical and physical-mechanical aspects of quasicrystals were given at the beginning of the conference. Among all talks given, some breakthroughs are worth mentioning, like quasicrystalline oxides surfaces grown on perovskite substrate, quasicrystalline optical networks (theoretical and experimental studies, optical band gap measurements), attempts to answer a key question on stabilization mechanism of quasicrystals (energy vs. entropy) by high-temperature diffraction experiments. Both young scientists and specialists in the field enjoyed the scientific quality of the conference a lot. The next ICQ will be held in Katmandu, Nepal, in 2016. Good luck!

For the ICQ12 Proceedings only selected manuscripts were reviewed and published. The Guest Editors of ICQ12 Proceedings kindly acknowledge the organizational help from Pawel Kuczera and Shelomo Ben-Abraham, as well as many unnamed reviewers. Jacek Miękisz and Michael Baake were responsible for the mathematics-related manuscripts. For technical support we thank Radosław Strzałka and Maciej Chodyń. Most sincerely we thank all authors for their contribution to ICQ12 Proceedings.

Janusz Wolny and Marian Surowiec
Guest Editors, ICQ12 Proceedings

12 S.J. Poon, F.S. Pierce, Q. Guo and P. Volkov, in "5th International Conference on Quasicrystals" (ICQ5) , Avignon, France (Edited by : Janot C. et Mosseri R., World Scientific 1995). 13 V. Karpus, G.J. Babonas, A. Reza, W. Assmus, A. Langsdorf, O. Hunderi and E. Wold, Lithuanian Phys. J., 37,6, pp. 385-388 (1997). 14 D. Mayou, Phys. Rev. Lett., 85, 6, pp. 1290-1293 (2000). 15 V. Demange, A. Milandri, M. C. de Weerd, F. Machizaud, G. Jeandel and J. M. Dubois, Phys. Request PDF | On Aug 1, 2014, J. Wolny and others published Proceedings of the 12th international conference on quasicrystals (ICQ12) | Find, read and cite all the research you need on ResearchGate. The II All-Russian Conference was held on June 8-9, 2006, at the Russian Research Center (RRC) Kurchatov Institute on Quasicrystals. The conference provided a platform for researchers to discuss about different aspects of the physics and materials science of quasicrystals, including synthesis and structure of quasicrystalline phases. Quasicrystals feature electronic and mechanical properties that [Show full abstract] make them significant for use in various fields of technique. ICQ12 provides an excellent opportunity to learn about new results in the field of quasicrystals and related topics. The ICQ12 follows the Nobel Prize given to Dan Shechtman in 2011 for the discovery of quasicrystals. Professor Shechtman will be an honourable guest of the Conference. ICQ12 also offers an opportunity for researchers working on quasicrystals and related topics to exchange ideas and encourage collaborations with other research groups, hence promoting material science and engineering. ICQ12 thanks the following sponsors