

Preface

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The 5th International Symposium on Symmetries in Subatomic Physics (SSP2012) took place in Groningen (The Netherlands) from Monday June 18 through Friday June 22 2012. After Taipei, Seattle, Adelaide, and Taipei, this was the first time that the symposium was held in Europe. The focus of the symposium has changed drastically: The current emphasis is on fundamental symmetries, in particular the discrete symmetries of Parity (P), Charge conjugation (C) and Time invariance (T). These concepts are closely connected with searches for physics beyond the Standard Model. Topics that were covered are P and T violation, Lorentz and CPT invariance, antimatter, QCD and gauge symmetries, SUSY, neutrino properties, baryon and lepton number violation, and cosmology. The experimental techniques ranged from

The 5th International Symposium on Symmetries in Subatomic Physics (SSP 2012), Groningen, The Netherlands, 18–22 June 2012.

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large scale experiments, LHC and neutrino detectors, to table top experiments in atomic physics.

The program consisted of plenary sessions with invited and contributed talks. A special session was hosted by the collaboration “Broken Mirrors and Drifting Constants” of the Vrije Universiteit Amsterdam and KVI University of Groningen with the topical question considering the possibility that nature constants are not constant, from both a theoretical and experimental standpoint.

To balance between all these topics and keep the connection between them we were assisted by a Program Advisory Committee: G. Giudice (CERN), W. Marciano (BNL), G. Gabrielse (Harvard) and F. Linde (NIKHEF).

The International Advisory Committee consisted of V. Flambaum (New South Wales), H. Gao (Duke), S. Gardner (Kentucky), W. Haxton (Berkeley), E. M. Henley (Seattle), P. Herczeg (Los Alamos), X. Ji (Maryland), K. P. Jungmann (KVI), D. B. Kaplan (Seattle), B. Kayser (Fermilab), I. Khriplovich (Novosibirsk), K. Kirch (PSI), V. A. Kostelecky (Indiana), K. S. Kumar (Massachusetts), Y. Kuno (Osaka), B. Ma (Peking), B. H. J. McKellar (Melbourne), U. G. Meissner (Bonn), A. N. Mitra (Delhi), P. Mulders (Amsterdam), S. Nagamiya (KEK), O. Naviliat-Cuncic (MSU), W.T.H. van Oers (Manitoba), W-Y. Pauchy Hwang (Taipei), J. Peng (Illinois), L. Roberts (Boston), N. Severijns (Leuven), H. Ströher (Julich) and F. Wang (Nanjing).

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The local organizing committee consisted of H.W. Wilschut, R.G.E. Timmermans, D. Boer, E. Pallante, C.G.E. Onderwater, and J. Messchendorp, with assistance of A. Petitieux and N.L. Mol. The editors are also indebted to N.L. Mol for tracking the progress in the production and refereeing of the proceedings.

The editors,

H.W. Wilschut and E. Pallante.



Conference photo inspired by the evening lecture “Escher and the Droste effect”, by B. de Smit.

About the bridge



The bridge chosen for the logo of the SSP2012 is the image of a steel train bridge close to our institute, the Walfridus bridge. The bridge is a “tied arch bridge¹” with a twist. The bridge crosses a canal and a road at 45° (an overview of the topology can be seen on this photograph² (Flickr)). To save space and material the arches are translated relative to each other, breaking the familiar parallel symmetry of arch bridges. The cross beams, that are traditionally at 90° and 45°, now follow a pattern that still echoes that tradition but the beams appear to rotate when viewed from the front of the bridge. The typical symmetry of a bridge is maintained if one ignores the characteristic Dutch addition of a bicycle path. This you realize in the following way: Make a movie on an overcast day; you will not be able to tell from which side the movie is taken. Run the movie forward or backward; you can not tell the difference from a train crossing (the train being fore-aft symmetric). With a boat passing you can. The main architect of the bridge is Jaap van der Steeg of the Arcadis³ group responsible for many large infrastructures in the Netherlands.

About the photograph

Every conference in Groningen must have a poster with a picture of the tower in the center of the town (Martinitoren⁴). Here we can see the tower in the distance at the vanishing point. The photograph was taken by Henk de Boer, more photographs from him can be found on Flickr⁵. This particular photograph is taken by flying a kite with a camera using the “power focus” technique.

¹http://en.wikipedia.org/wiki/La_Vicaria_Arch_Bridge

²<http://www.flickr.com/photos/kapturer/2895629902/>

³<http://www.arcadis.nl/Pages/default.aspx>

⁴<http://en.wikipedia.org/wiki/Martinitoren>

⁵<http://www.flickr.com/photos/powerfocus/>