

# 武汉物数所理论交叉学术交流系列报告

(第八十八期)

## Quasicrystals

Jacques H. H. Perk, Professor  
Oklahoma State University

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频标楼4楼报告厅

### About the speaker:

Professor Jacques H.H. Perk received the doctorandus degree in theoretical physics from the University of Amsterdam and a doctorate in mathematics and physical sciences of the University of Leiden. From 1979 to 1981 he was research fellow at the C.N. Yang Institute of Theoretical Physics and from 1981 to 1988 he was an Assistant Professor there. In 1988 he moved to Oklahoma State University, where currently he is a Professor of Physics.

Professor Perk has received numerous invitations. For example, he has been an Invited Professor at the Research Institute for Mathematical Sciences (RIMS) of Kyoto University (1991-1992) and at Australian National University (2008-2009). His research specializes in exactly solvable models of statistical mechanics, using such techniques as fermion methods, Bethe Ansatz, Yang-Baxter equations and quantum groups.



### Abstract:

Quasiperiodic structures had been studied by mathematicians and even appeared decorating medieval Islamic buildings. However, when in 1982 Dan Shechtman observed a ten-fold scattering pattern from a metal alloy crystal, he was ridiculed by his colleagues who said that his observations contradicted standard texts like Kittel's. Although initially rejected, Shechtman succeeded in publishing his findings in 1984. For this work he received the 2011 Nobel Prize in Chemistry.

In the talk I shall review several theoretical developments, Shechtman's findings and some recent technological applications. Finally, I shall show some results obtained by Helen Au-Yang and myself without going into the mathematical details. The talk should be accessible to a general audience, including beginning students.

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