

# Lecture Notes in Physics

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## PDMS and Clusters

Proceedings of the  
1st International Workshop on the Physics of Small Systems  
Held on the Island of Wangerooge, Germany  
September 8–12, 1986

Edited by E.R. Hilf, F. Kammer and K. Wien

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## Preface

This volume contains the proceedings of the First International Workshop on the Physics of Small Systems held on the Isle of Wangerooge, F.R.G., 8 - 12, September 1986. Cluster physics and fast-ion-induced desorption of particles are independent fields of research that have shown rapid progress in recent years. The two topics are descended from quite different branches of physics — solid-state physics on the one hand, radiation and nuclear physics on the other — so why deal with them together in one joint workshop ?

After MacFarlane's basic discovery of PDMS (plasma desorption mass spectrometry) this particle desorption induced by high-energy ions from accelerators or from fission events in a  $^{252}\text{Cf}$ -source was at first studied for its own sake. Recently it has emerged that it has the potential to become an extremely precise and practicable tool for mass spectrometry with unique, new and surprising practical applications primarily in cluster physics, biology and chemistry, for example:

- \* clusters with high internal excitation
- \* intact organic and even biological molecules

Each of these applications will open up a new field. A further motivation for the Workshop was the growing interest in the physics of the transient region between the world of single atoms and the one of extended solids, together with related interest in the properties of and processes at surfaces.

The Workshop was suggested by the cooperation of the organising groups in the field of cluster desorption and by the fact that there is now a tradition of annual meetings in PDMS/SIMS research. We are thankful to the contributors who proved that the idea was worth putting into practice.

Our thanks go to Mrs. Petra Schellhuber, who successfully undertook the local organisation of the meeting at short notice, to Mrs. Theresia Meyer, who set many of the manuscripts with a textprocessor system, and to Michael Wendel for succeeding in implementing it on a portable PC with an ordinary matrix dot printer.

The Workshop was financed generously by the Stiftung Volkswagenwerk; additional support from the company BAWI GmbH in Wilhelmshaven is also acknowledged.

Oldenburg in December 1986, E.R.Hilf  
H.F.Kammer  
K.Wien

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