Perspectives on surface science

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PREFACE

Perspectives on surface science

Guest Editor

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Surface science has been an area of continuous interest during the last decades. In recent years, we have witnessed both the development of surface techniques to a high degree of accuracy and their application to an ever growing range of new phenomena. The outcome has been the appearance and development of promising scientific topics, which have attracted a lot of interest. This special issue presents a collection of eleven invited articles covering both the current status and recent developments of surface science techniques, and several selected subjects of current interest. Obviously, the selection does not pretend to be exhaustive, which would exceed the possibilities of a single special issue, but it rather concentrates on a few important topics. The first paper by Woodruff [1] reviews the status of investigations related to the structure of surfaces and their future development. Low-energy electron microscopy, a technique which is being used to analyze more and more systems showing fascinating physical properties, is the subject of the next article written by Altman [2]. Optical properties of surfaces are reviewed by McGilp [3], and Benedek and co-workers [5] provide an overview of recent advances in the study of surface vibrations. The rest of the articles in this issue deal with more specific topics and recent experimental advances. Thiele reviews thin films evolution [4], and Wulfhekel and Gao the analysis of magnetic properties with scanning tunneling microscopy [6]. Next, the surface science of quasicrystals is reviewed in a paper by McGrath and co-workers [7]. Three articles study different aspects of the interaction of molecules with surfaces: the properties of adsorbed complex molecules by Grill [8]; an analysis of components of future molecular devices by Trevethan and co-workers [9]; and finally atomic interconnects and molecule logic gates by Joachim and co-workers [10]. The final paper by Hasegawa deals with the properties of one-dimensional metals grown on semiconductor surfaces [11].

The editor is grateful to all the invited authors for their contributions to this special issue of *Journal of Physics: Condensed Matter*.

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