

Returning to the photo-emission studies we note that we are able to determine the surface electronic structure experimentally, and from intensity measurements we can establish symmetries and the orbital character of the states. These results must be compared with calculated surface energy bands to check models. Such calculations are difficult and expensive for large surface unit cells and have so far for GaAs (001) been restricted to the non-existing, but calculable 2×1 reconstruction. There is, however, a good qualitative agreement between the measurements for the 2×4 reconstruction and the calculated surface bands for the 2×1 dimer model illustrated in Fig. 7c. The dimer bond is found to have approximately the same binding energies ($-3.5 \text{ eV} \leq E_i \leq -3.0 \text{ eV}$) and k_{\parallel} -values by both calculations and measurements, while states which are associated with broken bonds and bonds to Ga-atoms in the second layer, are found both theoretically and experimentally in the energy range $-2.5 \text{ eV} \leq E_i \leq 0 \text{ eV}$.

Conclusions

In this article we have shown how the combination of a UHV-based thin film growth technique (MBE) with ARPES and RHEED has provided unique opportunities for the study of a wide range of semiconductor surfaces and interfaces. The limitations of cleavage and ion bombardment are removed and the grown surfaces are free of damage and show precisely controlled composition. We have used the GaAs (001) - 2×4 reconstruction to illustrate the method. This surface cannot be reproducibly prepared by any other means.

In addition to evaluating the crystallographic and electronic structure of as-grown surfaces we have shown how RHEED can be used to study thin-film growth dynamics. Space does not permit the discussion of core level spectroscopy and interface studies, but they are readily incorporated into this general area, to the extent that surface and interface chemical effects are already being studied by measurements of core level binding energies and energy shifts, which can also provide information on the values of band edge discontinuities at semiconductor heterojunctions.

REFERENCES

1. Gossard A.C., *Treatise on Materials Science and Technology* 24 (Academic Press, New York) 1983, p. 13.
2. Joyce B.A., Neave J.H., Dobson P.J. and Larsen P.K., *Phys. Rev.* B29 (1984) 814.
3. Braun W. and Bradshaw A.M., *Europhysics News* 15 (1984) 6.

The Jülich Nuclear Research Centre

(Kernforschungsanlage Jülich)

is seeking for its Solid State Research Institute

(Institut für Festkörperforschung, IFF) a

DIRECTOR

as Head of one of its experimental institutes (previously the Institute for Superconductivity and Low-temperature Physics).

The IFF comprises seven experimental and three theoretical institutes, which carry out basic research in solid state physics, together with the necessary infrastructure.

The applicant should have outstanding knowledge and experience in experimental condensed matter physics and be capable of leading a scientific institute. He should be able to complement the present activities of the IFF by a new and promising field, preferentially in the area of disorder phenomena or of phase boundaries and internal interfaces. It would be preferable if the institute would use German and international neutron sources (FRJ-2 Jülich; ILL Grenoble, later the Jülich Spallation Neutron Source, SNQ), and synchrotron sources (Hasylab, Hamburg; Bessy, Berlin; later the European Synchrotron Radiation Facility ESRF). Particular importance will be attached to a willingness to work with the other experimental and theoretical groups of the IFF. It is planned to arrange a joint appointment as a full professor (C-4) with one of the universities of North-Rhine-Westfalia.

Applications with curriculum vitae, list of publications and a short account of previous scientific activity should be sent by 15 May, 1985 to



VORSTAND DER KERNFORSCHUNGSANLAGE JÜLICH GmbH
Postfach 1913
D - 5170 Jülich

Council Decisions

The EPS Council met in Berlin (West) on 22/23 March 1985 following meetings of the Executive Committee and various advisory committees, reports on which will be given in the May issue of *Europhysics News*. Coincidentally, the 5th EPS General Condensed Matter Physics Conference was being held at the Technical University during which generous exposure was given to EPS, and participants not yet IOMs were urged to add their weight to the Society.

Decisions taken by the Council included: the election of the Executive Committee for 1985/86 which took office immediately after the Council meeting; the changes to the Constitution and By-laws to cater more effectively for the suspension of members who do not pay their annual fees, and the provision of a reduced membership fee for young physicists (below 30 years of age) as well as retired physicists (already agreed). The relevant articles and rule are cited overleaf.

Council by a large majority also empowered the Executive Committee to raise the unit fee from the beginning of 1986 from its present value of Sw.Fr. 10.- to Sw.Fr. 11.-. The last rise took place at the beginning of 1983 and Council has in the past approved the principle that the unit fee should, in general terms, keep pace with Swiss inflation, as this represents the increase in much of the Society's expenditure. Although inflation in Switzerland tends to rise more slowly than in most European countries, the yearly rate is rarely below 3% and in 1985 has been running at nearly 10%. The three-year figure, 1983-85, is thus likely to be well over the 10% mark.

Executive Committee 1985/86

President	G.H. Stafford, Oxford
Vice-President	W. Buckel, Karlsruhe
Secretary	W.J. Merz, Zurich
Vice-Secretary	N. Kroo, Budapest
Treasurer	D. Kuhn, Innsbruck
Vice-Treasurer	E.W.A. Lingeman, Amsterdam
Members	B. Dreyfus, Grenoble J.M. Gilles, Namur O.V. Lounasmaa, Espoo K.K. Rebane, Tallinn R.A. Ricci, Padova

Outgoing members completing the maximum term of office were:

J. Kaczer, Prague
G. Preparata, Bari