The new paradigm of 2D materials as revealed by momentum microscopy

Olivier Renault[1], E. Kloss[1, 2], M. Gay[1], M. Jamet[3]

[1]*Univ. Grenoble-Alpes, CEA, LETI, F-38000 Grenoble*

[2]*Univ. Grenoble-Alpes, CNRS, Grenoble INP, Institut Néel, F-38000 Grenoble*

[3]*Univ. Grenoble-Alpes, CEA, IRIG, SPINTEC, F-38000 Grenoble*

olivier.renault@cea.fr

Two-dimensional (2D) materials beyond graphene such as transition-metal dichalcogenides (TMDC), and related heterostructures, are attracting considerable interest for fundamental research in condensed matter physics due to their intrinsic peculiar properties arising from inversion symmetry breaking. On the applications side, they inherently represent the ultimate level of miniaturization and are promising in optoelectronics due their direct band-gap. Momentum microscopy is very fruitful for retrieving essential data on 2D materials and related heterostructures which need to be studied at the micro-scale with perfect control of

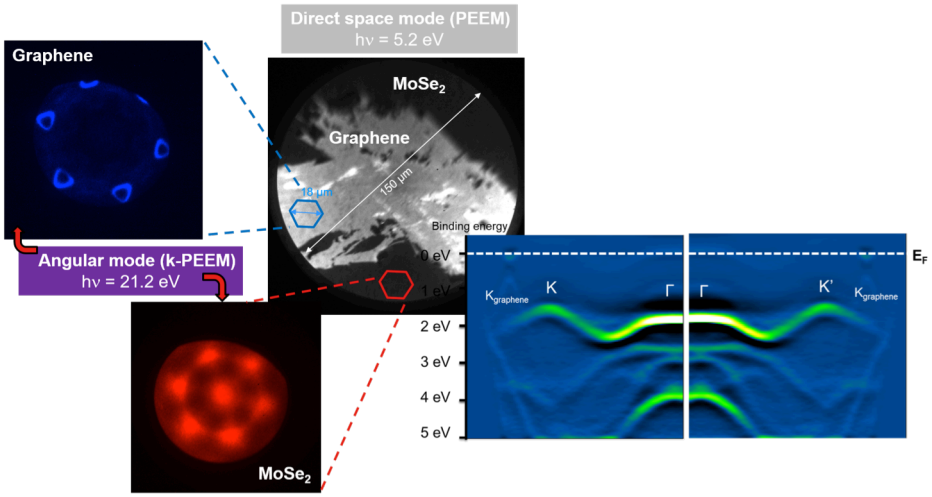

Figure 1: Photoemission electron momentum microscopy (HeI excitation) of a $MoSe_2$/graphene heterostructure.

the analysis area. In this talk, we will review different works using *k*PEEM performed with a NanoESCA MkI instrument recently upgraded with a micro-focussed He discharge lamp [1-4]. Perspectives regarding correlative momentum microscopy with quantitative core-level mapping using X-rays will be presented.

References

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