



Contribution ID: 252 Contribution code: S06-CMPSP-229

Type: Poster presentation

Planar surfaces of point dipoles as a platform for 2d magnetic structure research

Tuesday, August 30, 2022 6:00 PM (1h 30m)

Our system consists of planar magnetic structures created by the assembly of point dipoles. The departure point of this work is the known degeneracy of ground states in planar square and triangular packings. The square lattice has a particularly interesting antiferromagnetic ground state exhibiting a transformation from percolating antiferromagnetic chains of dipoles pointing head-tail to a remarkable magnetic vortex configuration [1]. We follow the breakup of degeneracy observed in planar square and triangular packings with a mismatch of the orientation of stacked lattices. We further investigate the ability of these surfaces to carry spin current and manifest the magnetoelectric effect [2].

References

1. I. Stanković, M. Dašić, J.A. Otálora, C. García A platform for nanomagnetism–assembled ferromagnetic and antiferromagnetic dipolar tubes, *Nanoscale* 11(5), 2521-2535 (2019).
2. H. Katsura, N. Nagaosa, and A. V. Balatsky, *Phys. Rev. Lett.* 95, 057205 (2005).

Primary authors: RODRIGUEZ SOTELO, Sindy Julieth (Laboratorio de Física de Superficies e Interfaces, Instituto de Física del Litoral (CONICET-UNL) & Departamento de Física, Facultad de Ingeniería Química (UNL)); STANKOVIĆ, Igor (Scientific Computing Laboratory, Center for the Study of Complex Systems, Institute of Physics Belgrade, University of Belgrade); PASSEGGI (JR.), Mario C.G. (Laboratorio de Física de Superficies e Interfaces, Instituto de Física del Litoral (CONICET-UNL) & Departamento de Física, Facultad de Ingeniería Química (UNL)); Prof. AGUIRRE, Myriam H. (Instituto de Nanociencia y Materiales de Aragón, CSIC-Universidad de Zaragoza & Dpto de Física de la Materia Condensada, Universidad de Zaragoza. 50009 Zaragoza & Laboratorio de Microscopías Avanzadas-LMA, Universidad de Zaragoza, 50018-Spain); GARCIA, Carlos (Departamento de Física & Centro Científico Tecnológico de Valparaíso-CCTVal, Universidad Técnica Federico Santa María)

Presenter: RODRIGUEZ SOTELO, Sindy Julieth (Laboratorio de Física de Superficies e Interfaces, Instituto de Física del Litoral (CONICET-UNL) & Departamento de Física, Facultad de Ingeniería Química (UNL))

Session Classification: Poster session

Track Classification: Scientific Sections: S06 Condensed Matter Physics and Statistical Physics