

Special Issue

Ferrimagnetic Materials: State of the Art and Future Perspectives

Message from the Guest Editor

Since the beginning of the 1990s, with the introduction of organic ligands between magnetic cations, magnetochemistry has seen significant development. This molecular “do it yourself kit” has allowed us to synthesize new ferrimagnets (initially considered by Néel to be exclusive antiferromagnets). As a result, through the full control of their microscopic magnetic properties, it is now possible to impose the ferromagnetic or antiferromagnetic character of exchange energy, the magnitude of the magnetic moment per site, the dimensionality of spin lattices (1d, 2d or 3d), transport properties, notably in the field of molecular electronics and magnetic semiconductors, but also the hysteresis phenomenon important for industrial applications. Simultaneously, new theoretical modeling challenges have emerged. **Keywords**

Ferrimagnetism
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ferromagnetism
Heisenberg couplings
Ising (z-z) couplings
x-y couplings
insulator
magnetic semiconductor
molecular electronics

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