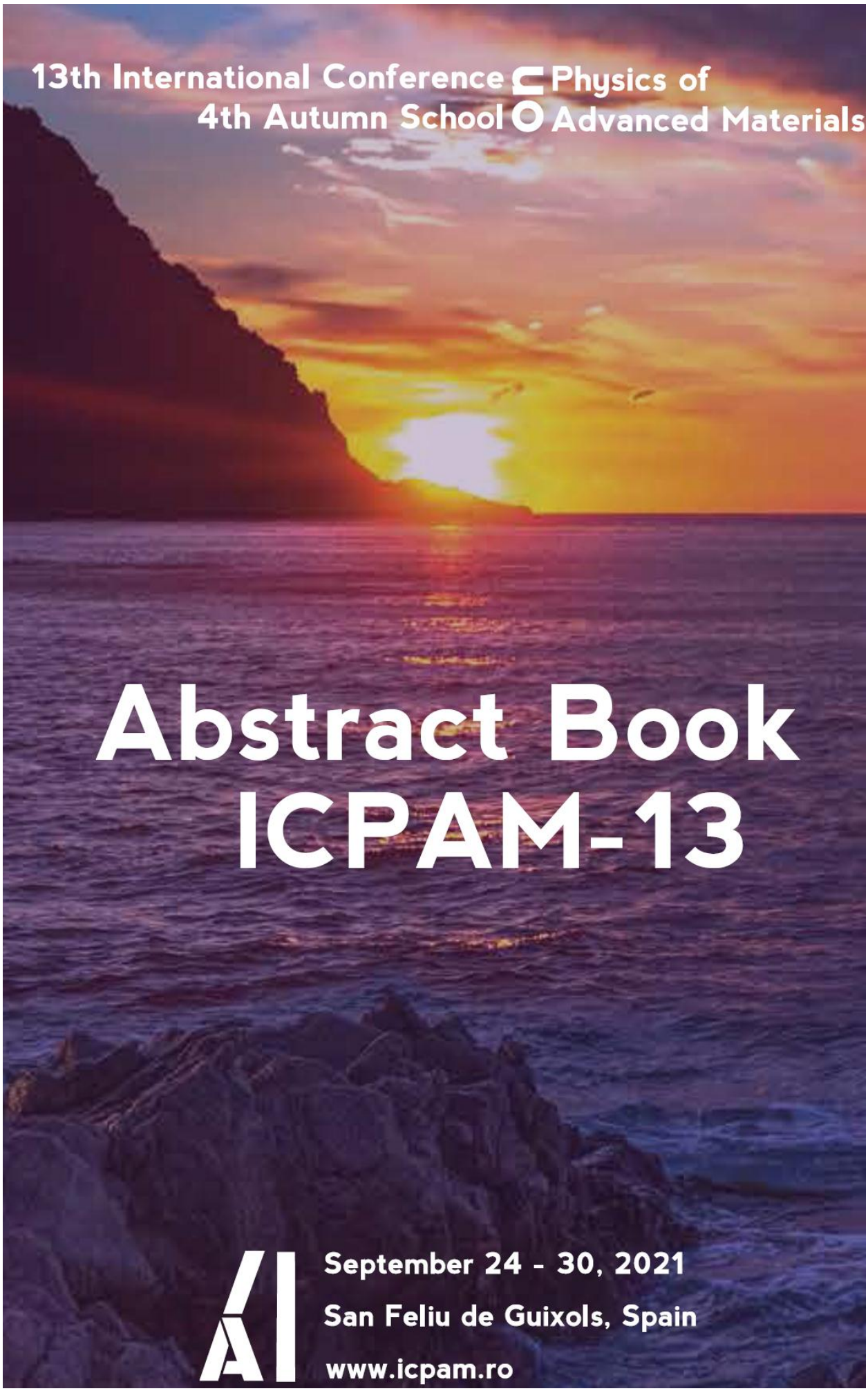
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for the samples with the larger diameter, for the samples in the as-cast state. Thus, we have obtained powders with a mixture of amorphous and nanocrystalline phase for sizes of up to 48 μm by using an improved atomization technique, which will be used for the fabrication of magnetic cores for high frequency applications.

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T4-P: Phase transition in spin-crossover system with random interaction

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In the regular spin-crossover (SC) lattice, the intermolecular elastic interactions originating from misfit between different molecular volumes for both spin states generates very rich behaviors. The microscopic Ising-like model for SC regular molecular crystals with intermolecular interaction in the fully connected limit is

, (1)

where, is coupling between the *i*-th and *j*-th spins, is pseudospin operator with eigenvalues . For SC compounds the magnetic field cannot be zero and is determined as

. Here, is non-zedro crystal field and *g* is relative degeneracy. We considered the random exchange approach for the

interaction in which it can be assumed to have Gaussian distribution:

. (2)

Whithin this approach one can see the physical meanings for and , that are average value and the standard deviation of intermolecular coupling [1].

To better appreciate the regime without histeresis, the critical one, and the one with hysteresis we studied numerically the systesm magnetization and spin-order parameter for two opposite cases and (see, Fig. 1). One can see that the occurrence of a smooth or sudden change of and are strongly related to the average intermolecular coupling . The random distribution of intermolecular bonds destroys the magnetic order in the system.