

EFFECTIVE EQUATIONS OF MOTION
OF PARTICLE-LIKE EXCITATIONS
IN TWO-DIMENSIONAL MAGNETS

*E.G. Galkina, B.A. Ivanov^{1,2}, V.M. Muravyov^{1,3},
D.D. Sheka²*

Institute of Physycs, Nat. Acad. Sci. of Ukraine
(46, Nauky Prosp., Kyiv 03028, Ukraine),

¹Institute of Magnetism, Nat. Acad. Sci. of Ukraine
(36b, Academician Vernadsky Blvd.,
Kyiv 03142, Ukraine),

²Taras Shevchenko Kyiv National University
(64, Volodymyrska Str., Kyiv 01033, Ukraine),

³National Aviation University
(1, Komarova Prosp., Kyiv, 03058, Ukraine)

S u m m a r y

The soliton dynamics for different two-dimensional magnets is described by the anisotropic σ -model which is generalized for non-compensated antiferromagnets. The linear problem of small magnon oscillations on the soliton background is shown to be adequate for the soliton dynamics description. Effective equations of motion of a soliton are derived for a number of magnets; the soliton dynamics is analyzed for finite-size circular magnets.