

Dobrowolski, Tomasz

Geometry of vortices and domain walls. (English) Zbl 1235.82095

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The author considers relativistic models which contain in their spectra of solutions extended topological defects, such as vortices (typical for low energy systems) and domain walls (usually observed in ferromagnetic and ferro-electric materials). A direct correspondence between vortices and strings can be obtained if one refers only to vortices of constant width. Co-moving coordinates are constructed in the vicinity of the string on the one hand, and in the neighbourhood of the domain wall on the other hand. Then, by using a simple remark on equation transformation, the geometry of constant width vortices and domain walls is characterized.

Reviewer: [Guy Jumarie \(Montréal\)](#)

MSC:

[82D40](#) Statistical mechanics of magnetic materials

[82D45](#) Statistical mechanics of ferroelectrics

Keywords:

[geometry of vortices](#); [topological soliton](#)