Technology for fabrication of polymer magnetic nanocomposites possessing good conductivity and self-healing properties

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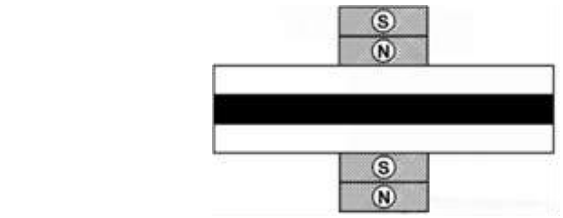
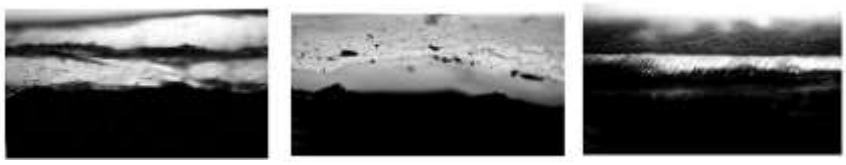
The technology of fabrication of polymer nanocomposites on basis of carbon nanoparticles doped by cobalt nanoclasters was developed. Their good conductivity, self-healing properties were demonstrated by applying the combined action of temperature, pressure, steady and alternating magnetic fields to stimulate diffusion of magnetic nanoparticles in direction to defect sites. Due to these properties fabricated magnetic polymer nanocomposites could have perspective for potential practical applications.



- Magnet, - polymer composite, - substrate

Fig1. Geometry of samples



a) b) c)

Fig.2. Self-healing of the Co / C 50% sample at T = 85°C temperature t = 2,5 hours: a) under the permanent magnetic field; b) without magnetic field; c) under the permanent and variable magnetic fields.

References

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