

Abstract Submitted
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Novel type of vortex rectification in plain Pb/Ge superconducting films FARKHAD ALIEV, JUAN SIERRA, VLADIMIR PRYADUN, Universidad Autonoma de Madrid, DUSAN GOLUBOVIC, VICTOR MOSHCHALOV, Katholieke Universiteit Leuven, UAM TEAM, KUL TEAM — Superconducting Pb/Ge films in a perpendicular magnetic field are found to rectify alternating currents. The rectified voltage appears both along and transverse to the alternating current and strongly depends on the magnetic field, temperature and AC drive. In superconductors with periodic pinning centres rectification voltage varies periodically with number of vortices on pinning centre. Depending on applied AC drive, rectification was observed down to below $T_c/2$. Interestingly, not far below T_c the rectification voltage is opposite on the opposite film sides. The new rectification phenomenon seems to be due to local excess of critical current at sample edges and appearance of corresponding electric field due to relatively slow (induced by vortex pinning) process of relaxation of the distribution of superconducting currents which screen the external magnetic field and which are forced to change by the application of the AC current (F.G.Aliev, et al., Cond. Mat.405656).

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