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The effect of magnetic field to the pairing phase transition of mesoscopic system[1] TONY SUMARYADA, ALEXANDER VOLYA, Department of Physics Florida State University — In this presentation we discuss pairing phase transitions in mesoscopic system. We investigate the role played by the magnetic field which is equivalent to rotation within the cranking model. Using exact solution of pairing we examine spin fluctuations, magnetization, specific heat, energy, and entropy for several systems with various statistical approaches. We emphasize a resemblance between observed mesoscopic properties and those known in the macroscopic physics of superconductors. At low field the normal and superconducting phases are separated by the second order phase transition. In the next region of higher magnetic field the normal and superconducting phases are separated by the transition of a different nature associated with a simultaneous peak in spin susceptibility end enhanced spin fluctuations. Finally, at even higher fields a superconducting state is not supported at all.

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