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The properties of Majorana fermions and normal metal rings coupled systems LEI FANG, DAVID SCHMELTZER, The City College of the CUNY and the Graduate Center of the CUNY — The systems of coupled Majorana fermions and normal metal rings are studied. The rings are threaded by magnetic fluxes. We find that by adjusting the chemical potentials or the magnetic fluxes, exact zero modes can appear when resonance happens. The zero mode is consisted of the counterclockwise propagating electron mode paired with the clockwise propagating hole mode, or vice verse. The transport properties of these zero modes are then studied by attaching the rings to external leads.

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