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Force-Free and Multifluid Relativistic Plasmas JESSE PINO, HUI LI, Los Alamos National Laboratory, SWADESH MAHAJAN, Inst. Fusion Sudies, U. Texas at Austin, SHENGTAI LI, Los Alamos National Laboratory — We investigate two topics in Relativistic Astrophysics: "Force-Free" Evolution with boundary pressure: In the large sigma limit, the evolution of magnetic fields around a rotating accretion disk are approximately force free. Field lines are wrapped up by the disk and expand outward with ExB velocity. We simulate this, retaining pressure terms far from the disk, and investigate how the morphology and evolution of the fields are changed by external pressure. "Relativistic Multi-fluid Plasmas": We describe a "minimal coupling" model of charged relativistic (both bulk and thermal motion) magnetofluids, and derive a minimization principle for relaxed states. Applications to pair plasmas in relativistic pulsar striped winds are discussed.

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