Stability of Rotating Gravitating Streams

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This paper treats the stability of two superposed gravitating streams rotating about the axis transverse to the horizontal magnetic field. The critical wave number for instability is found to be affected by rotation for propagation perpendicular to the axis about which the system rotates. The critical wave number for instability is not affected by rotation when waves propagate along the axis of rotation. The critical wave number is affected by both the magnetic field and the streaming velocity in both cases. Both the magnetic field and the rotation are stabilizing, while the streaming velocity is destabilizing.

Key words: Stability; Gravitating Streams; Rotation; Magnetic Field.