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**Curtailment of stimulated Brillouin scattering by localized magnetic field generation** MALCOLM HAINES — A new mechanism is proposed which will lead to the curtailment of stimulated Brillouin scattering (SBS). When SBS is excited in a laser speckle in an underdense plasma, the localized photon momentum deposition arising from both absorption and back-scatter will cause the generation of a secular magnetic field in the azimuthal direction. This converts the electrostatic ion acoustic waves associated with SBS into dominantly electromagnetic, fast magnetosonic waves. These will have a strong spatially varying phase and group velocity, because the azimuthal magnetic field varies strongly in space, being proportional to distance from the axis of each speckle. In turn this destroys the coherent planar density variations associated with the ion acoustic wave and so curtails the coherent back-scattered light. The higher frequency plasma waves of SRS are in contrast negligibly affected by magnetic fields, and these can now grow, having been previously inhibited by the density gradients associated with the ion acoustic wave. This mechanism is consistent with much experimental data.

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