

# THE RAYLEIGH–TAYLOR INSTABILITY AS A TRIGGER OF SOLAR FLARES

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The essential role of the Rayleigh–Taylor instability as a trigger of flare energy release is shown. Two cases of the RT instability are analyzed: near loop foot-points and at the loop top. The RT instability near loop foot-points requires pre-heating of chromospheric plasma. This pre-heating can be realized due to Joule dissipation in partially ionized plasma under the condition of the Cowling resistivity. The threshold of the RT instability is also determined by the rate of convective plasma flow. The RT instability at the loop top is driven by the activation of the prominence located above a magnetic loop. We have shown that the RT instability excites the superDreicer electric field in the chromospheric part of a loop which can be the best solution of longstanding «number problem» of the particle acceleration in solar flares. Preflare and flare pulses can be driven by plasma tongue oscillations in the course of the RT instability.