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Abstract:The cleaving of a solid to form two new surfaces may result in the emission of light. Conventional mechanoluminescence involves the transfer of charge between the two surfaces. We now demonstrate that the ultra-fast separation of charge within a newly-formed surface will lead to the emission of electromagnetic radiation. In contrast to the visible light previously observed and modeled, the intra-surface radiation contains terahertz frequencies. This new mechanism - named here surfoluminescence - introduces a new class of terahertz-frequency emitters. It also may in part explain the recent observation of terahertz emission from peeling adhesive tape. 
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