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Electromagnetic emission from magnetite plate cracking

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Electromagnetic emission generated by cracking of a magnetite plate is theoretically investigated. The non-stationary mechanical stresses produced by moving the tip of a crack, and a wave of mechanical unloading in the plate, are considered as the sources of the radiation. An analytical approximation of the stresses has been used for the calculation of the power and spectrum of the radiation. It is demonstrated that the radiation is produced by the appearance of a non-stationary magnetic moment in the plate.