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Dember effect induced photovoltage in perovskite *p-n* heterojunctions KUI-JUAN JIN[1], KUN ZHAO, HUI-BIN LU, LENG LIAO, GUO-ZHEN YANG, Beijing National Laboratory for Condensed Matter Physics and Institute of Physics, CAS, Beijing 100080, China — An unusual and rather large transient lateral photovoltage (LPV) has been observed in $La_{0.9}Sr_{0.1}MnO_3/SrNb_{0.01}Ti_{0.99}O_3$ and $La_{0.7}Sr_{0.3}MnO_3$/Si heterojunctions under the nonuniform irradiation of pulsed laser. The irreversible LPVs on both sides of a $p-n$ junction challenge the well established model for LPV in conventional semiconductor $p-n$ junctions, which can be well explained by Dember effect. Much larger LPV is observed in $La_{0.7}Sr_{0.3}MnO_3$/Si than that in $La_{0.9}Sr_{0.1}MnO_3/SrNb_{0.01}Ti_{0.99}O_3$. Similar results measured from both substrates of $SrNb_{0.01}Ti_{0.99}O_3$ and Si also support such a Dember effect. Much larger LPVs in heterojunctions than those in simple samples ($SrNb_{0.01}Ti_{0.99}O_3$ or Si) suggest a potential application of Dember effect in heterostructures.

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