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Constraining milli-charged particles with tip of the red giant branch brightness

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Milli-charged particles (MCP) can be produced through the decay of plasmon in stellar interiors and escape stars without interactions. This extra cooling could alter the brightness of low mass stars at the tip of the red giant branch (RGB). While the current stellar cooling bounds were obtained by estimating the total expected heat loss given the current stellar properties, we improve the bounds by using stellar evolution code to model the cumulative effect of MCP on the RGB tip brightnesses of selected globular clusters.

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