Proof of principle booster setup for the MADMAX dielectric haloscope

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MADMAX in a Nutshell



$$P/A = 2.2 \times 10^{-27} \,\text{W}\,\text{m}^{-2} \left(\frac{B_e}{10 \,\text{T}}\right) C_{a\gamma}^2 \cdot \beta^2$$

 β^2 : power emitted by booster / power emitted by single mirror ($\epsilon = \infty$)

80 lanthanum aluminate disks: $\beta^2 \sim 5 \times 10^4$

Let's do it...



Proof of Principle Setup



— simulation — measurement

















boostfactor and reflectivity correlated

Boost Factor Repeatability



in addition systematics: reflections, diffraction, tilts, ... see also poster by Jan Schütte-Engel

Conclusions



Thank You very much



