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# $e^+ e^-$ Background from Ultra-peripheral Au + Au Collisions



# Detector Geometry

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	HFT	ALICE
Inner radius:	1.3 cm (JT 1.5)	3.9 cm
Outer radius:	5.0 cm (JT 4.5)	7.6 cm
Magnetic field:	0.5 T	0.2 T
$p_T$ - cut-off:	1.0 MeV/c	1.2 MeV/c
UPC X-section*:	34 k barn	227 k barn
Visible X-section:	3.460 k barn	13 k barn
Luminosity:	$10^{27} \text{ cm}^{-2}\text{s}^{-1}$ (JT $8 \times 10^{26}$ )	$10^{27} \text{ cm}^{-2}\text{s}^{-1}$
Rate:	$3.46 \times 10^6$	$13.0 \times 10^6$

\*QED calculations: A.J. Baltz, nucl-th/0409044.

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	UPC	Hadronic Au + Au
Rate:	$3.46 \times 10^6 \text{ s}^{-1}$	
Integration time:	4 ms	4 ms
Hit density, inner layer:	$57 \text{ cm}^{-2}$	$58 \text{ cm}^{-2}$
Hit density, outer layer:	$6 \text{ cm}^{-2}$	$14 \text{ cm}^{-2}$

→ Hit density in outer layer: + 50 %

→ Hit density in inner layer: + 100 %

→ pattern recognition to remove spiraling electrons

→ vertex constraint to avoid misidentification of hits