

Beam BlowUp Calculations for RTM and DSM*,
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IKPH, Mainz University - Estimations of the threshold
current for transverse Beam BlowUp by the parasitic
TM110-like mode are presented, for a 1.3 GeV C.W.
Double Sided Microtron as a possible booster behind the
MAMI RTM-cascade. Two totally different codes were
used for these calculations: one based on a closed-loop
model of steady state BBU in frequency domain [1], and
another based on time dependent considerations [2]. As a
test, calculations for the RTM3 of MAMI were repeated
with both codes, showing good agreement. The parasitic
mode properties of the DSM accelerating structure, which
will operate at the second harmonic of MAMI, i.e.
4899 MHz, were extrapolated from the measured values
for the MAMI cavities. The results show, that, without any
special countermeasures, the BBU threshold current for this
DSM is between 0.4 and 0.8 mA, as compared with a
maximum beam current of 0.1 mA projected.

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- [1] H. Herminghaus and H. Euteneuer, NIM 163
(1979) 299
- [2] G.A. Kraft and J.J. Bisognano, Proc. of PAC'87,
p. 1356