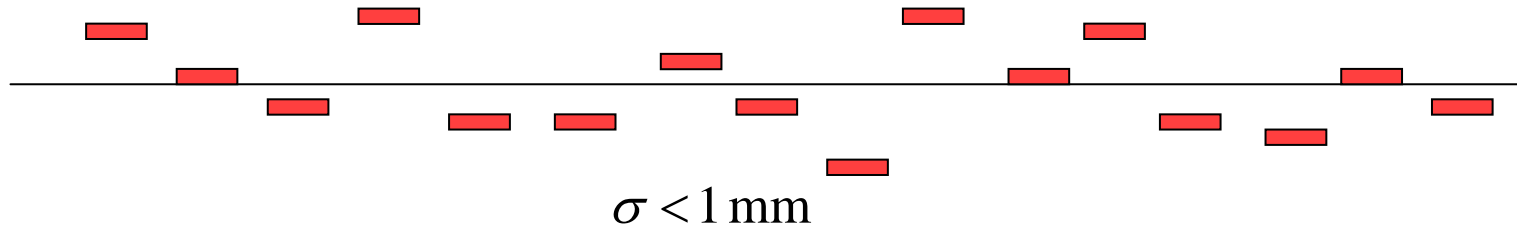


Appendix of Main Linac Simulation  
by Kiyoshi Kubo

Cavity offset tolerance was estimated as 1 mm,  $\sigma < 1$  mm.  
 Assuming every cavity is independently, randomly aligned.



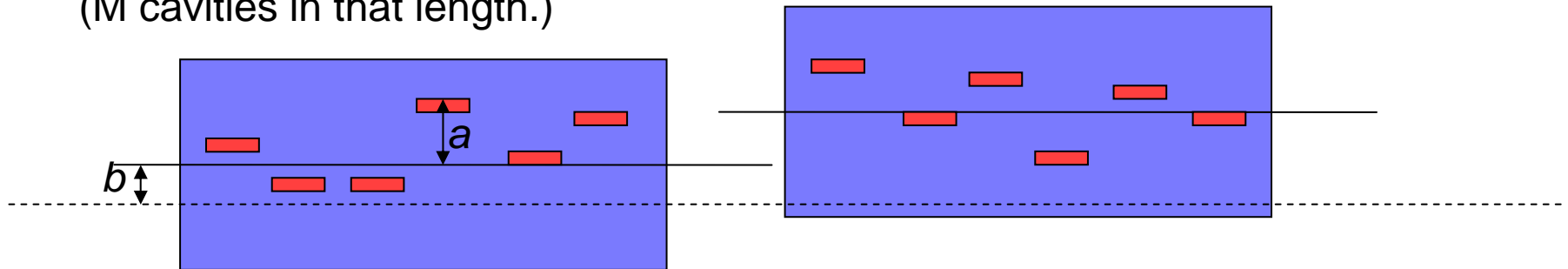
A little more realistic assumption:

Cavity is aligned w.r.t. cryomodule center with  $\sigma_a$ .

Cryomodule is aligned w.r.t. survey line with  $\sigma_b$ . (N cavities/module).

Survey line has random error with  $\sigma_c$ , in length comparable to betafunctor.

(M cavities in that length.)



$$\sqrt{\sigma_a^2 + N\sigma_b^2 + M\sigma_c^2} < 1 \text{ mm}, \quad (N \sim 10, \quad M \sim 100)$$