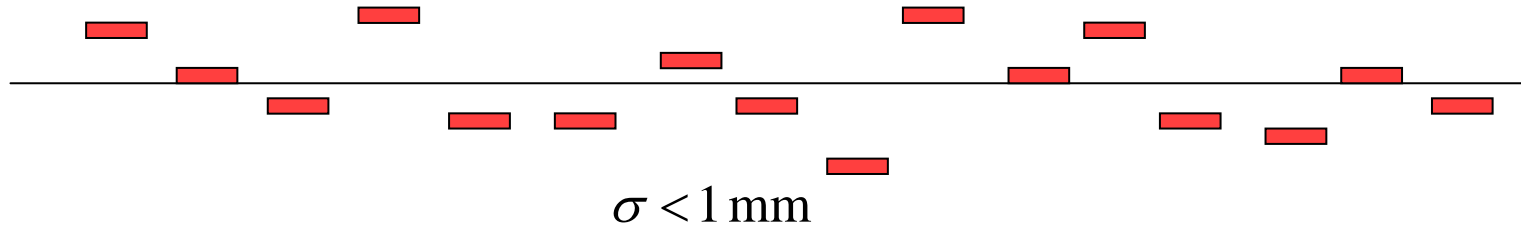# Appendix of Main Linac Simulation
by Kiyoshi Kubo

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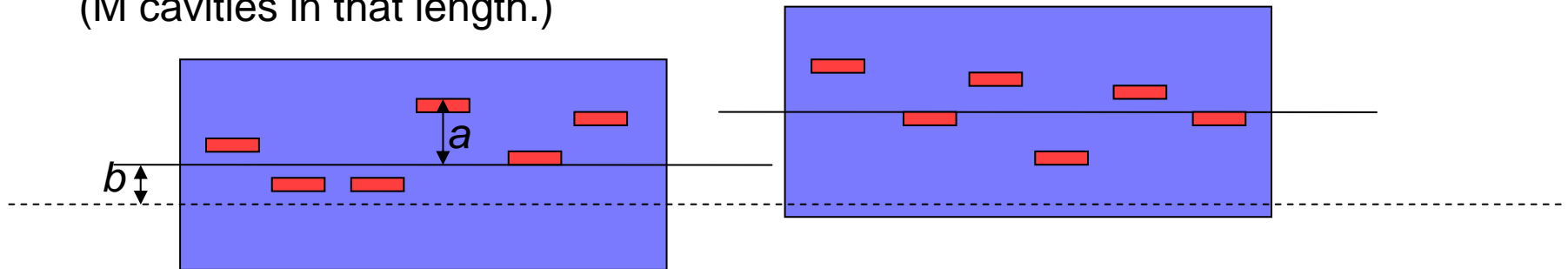
$$\sigma < 1\,\mathrm{mm}$$

A little more realistic assumption:
Cavity is aligned w.r.t. cryomodule center with σ_a.
Cryomodule is aligned w.r.t. survey line with σ_b. (N cavities/module).
Survey line has random error with σ_c, in length comparable to betafunction.
(M cavities in that length.)

a

b

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