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No parametric instabilities in actual linear accelerators except the envelope instability

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Our studies indicate that parametric instabilities except the envelope instability are unlikely to be observed in actual linear accelerators unless waterbag or KV distributions are generated. Furthermore our studies and previous literatures indicate the dominance of particle resonances over parametric instabilities in high-intensity linear accelerators. Any counter evidence has not been found yet. We propose a way to overcome the previous design rule to avoid the zero-current phase advance > 90° for the high-intensity linac.

Footnotes

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