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## Online fit of an analytical response matrix model for orbit correction and optical function measurement

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At the Karlsruhe Research Accelerator (KARA), an analytical online model of the orbit response matrix (ORM) has been developed and tested. The model, called the bilinear-exponential model with dispersion (BE+d model), is derived from the Mais-Ripken formalism describing coupled betatron motion. Compared to the standard approach of measuring the ORM, this method continuously adapts to changing beam optics without a dedicated measurement. It is especially useful for storage rings without turn-by-turn capable beam position monitors (BPMs) as the online model also gives access to estimates of the coupled optical functions. In the following, experimental orbit correction results and a comparison of fitted and simulated optical functions are presented.

### Funding Agency

### Footnotes

### I have read and accept the Privacy Policy Statement

Yes

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