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# Common Technologies/Components in nuSTORM and NuMax Rings

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# nuSTORM/NuMAX Global Parameters

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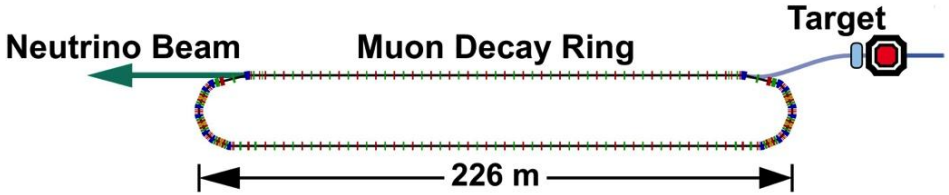


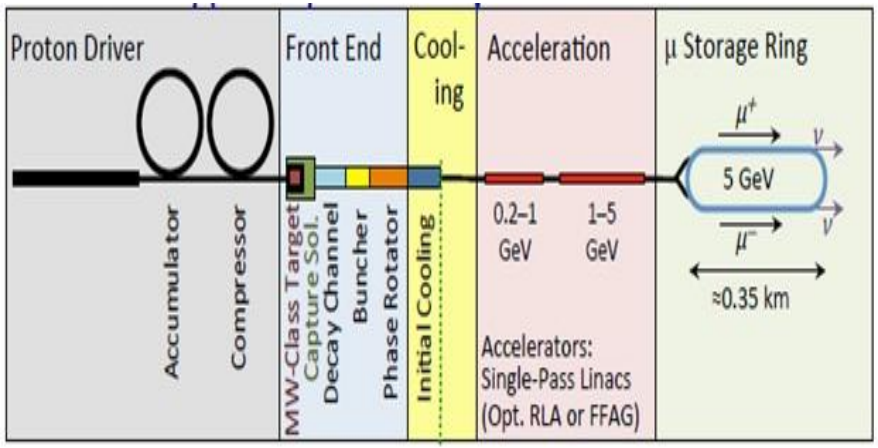


| | nuSTORM | NuMax |
|---|---|---|
| Muon Total Energy [GeV] | 3.8 | 5 |
| Bρ [Tm] | 12.675 | 16.674 |
| Geometrical acceptance [$\pi$.mm.mrad] | 3000 | 423 |
| Tilt angle [degree] | 0-1 | 5.8 |
| Momentum acceptance | ±9(16)% | ±6.3% |
| Long baseline length [km] | 2 | 1400 |
| Injection type | Stochastic | Full aperture with kicker |

# nuSTORM-RFFAG

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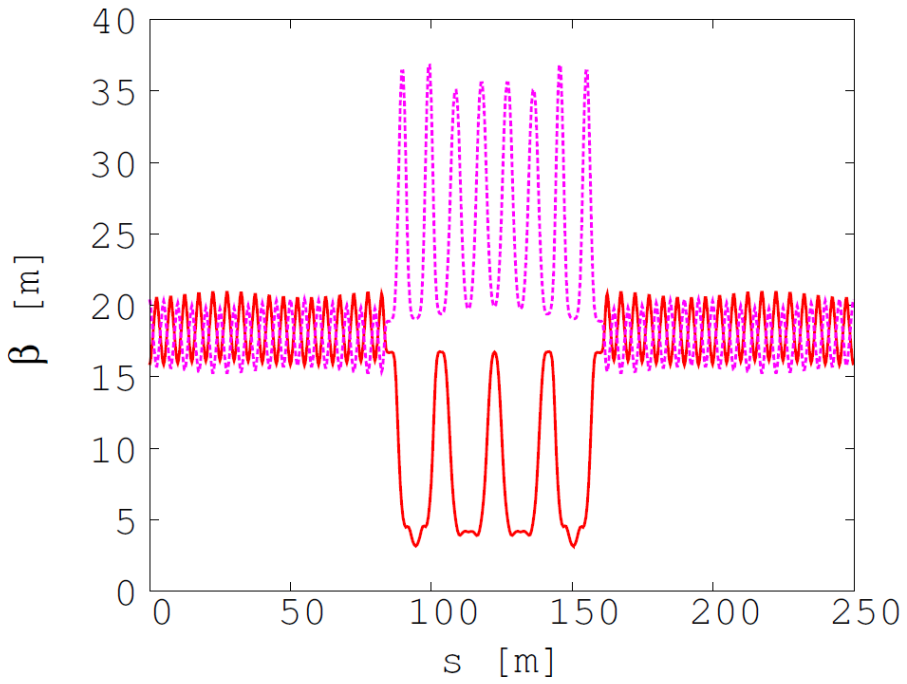
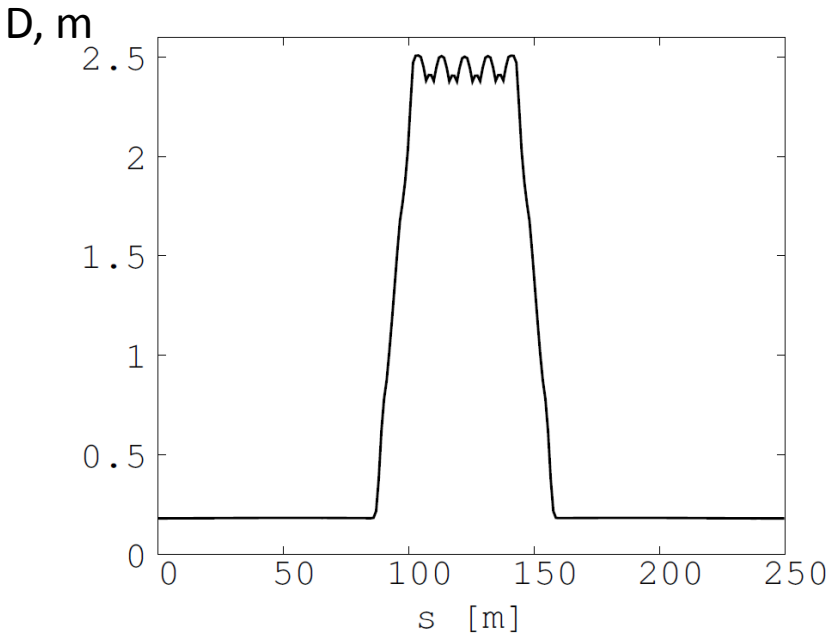
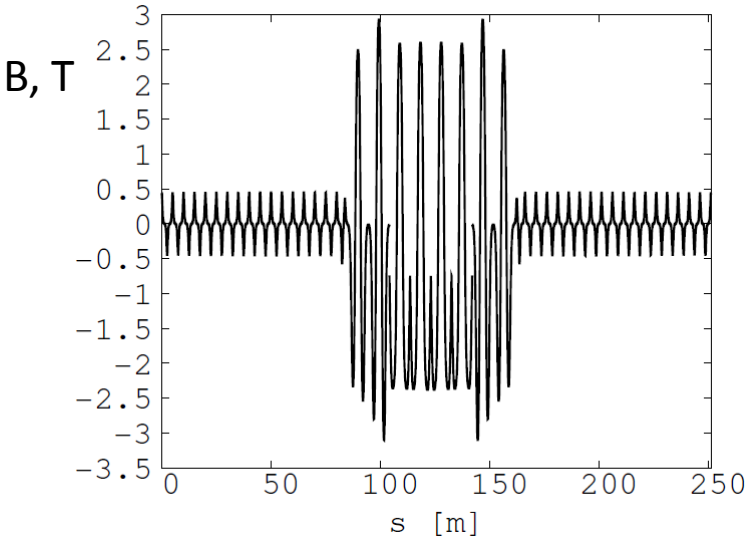
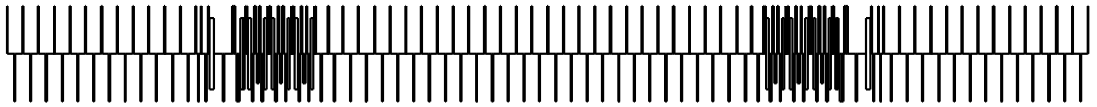
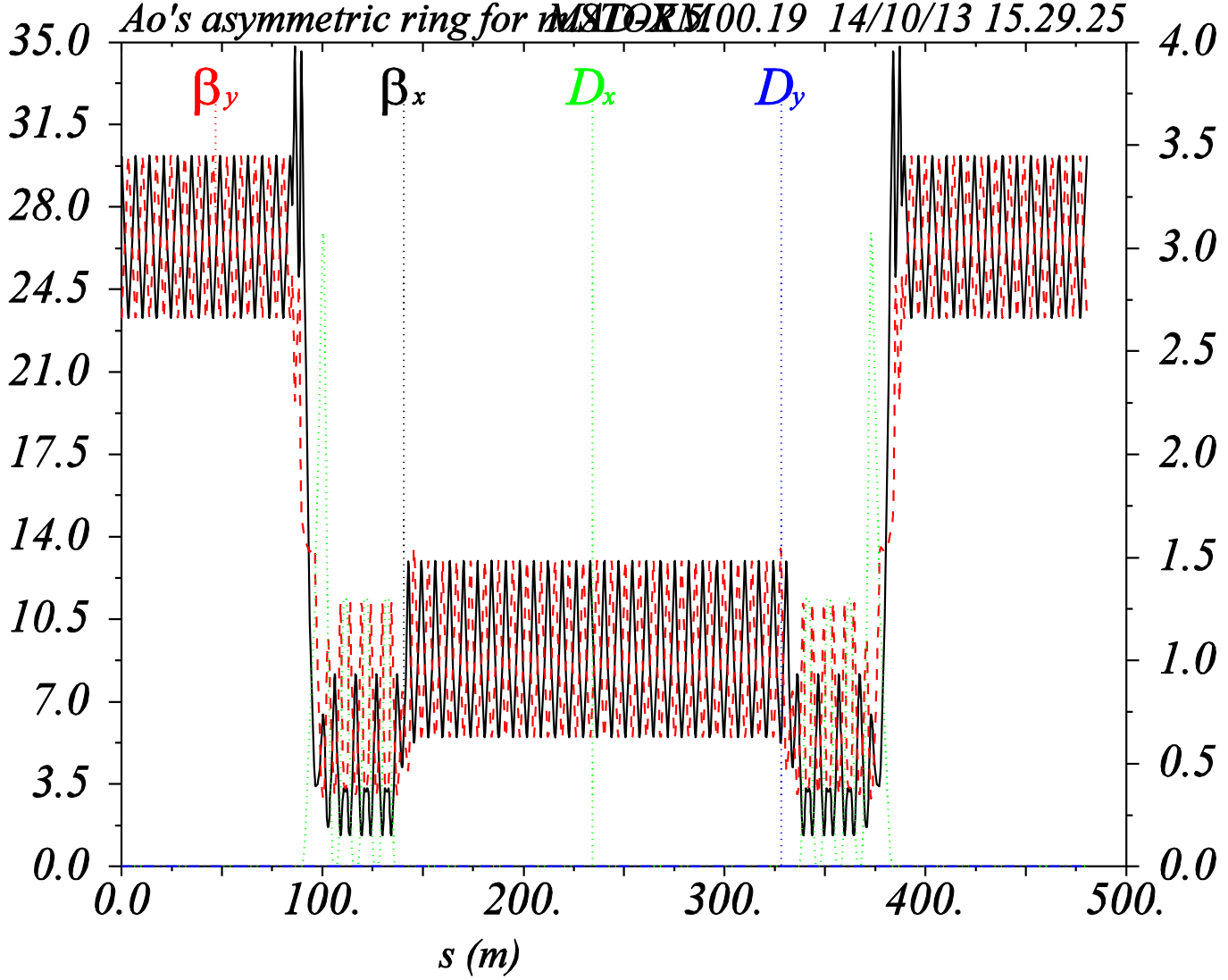


# nuSTORM-FODO





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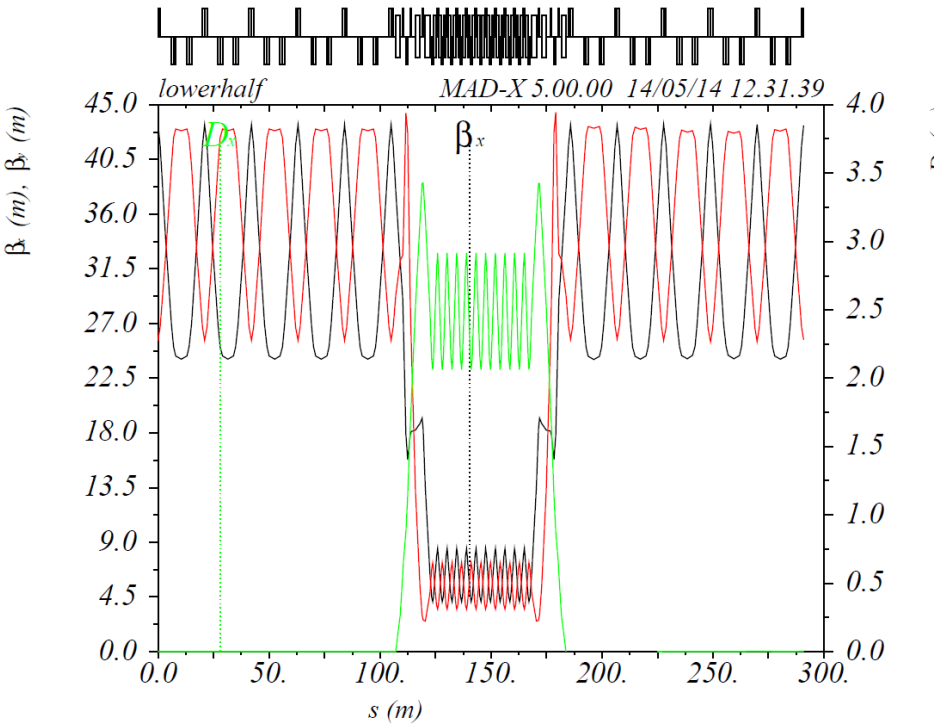
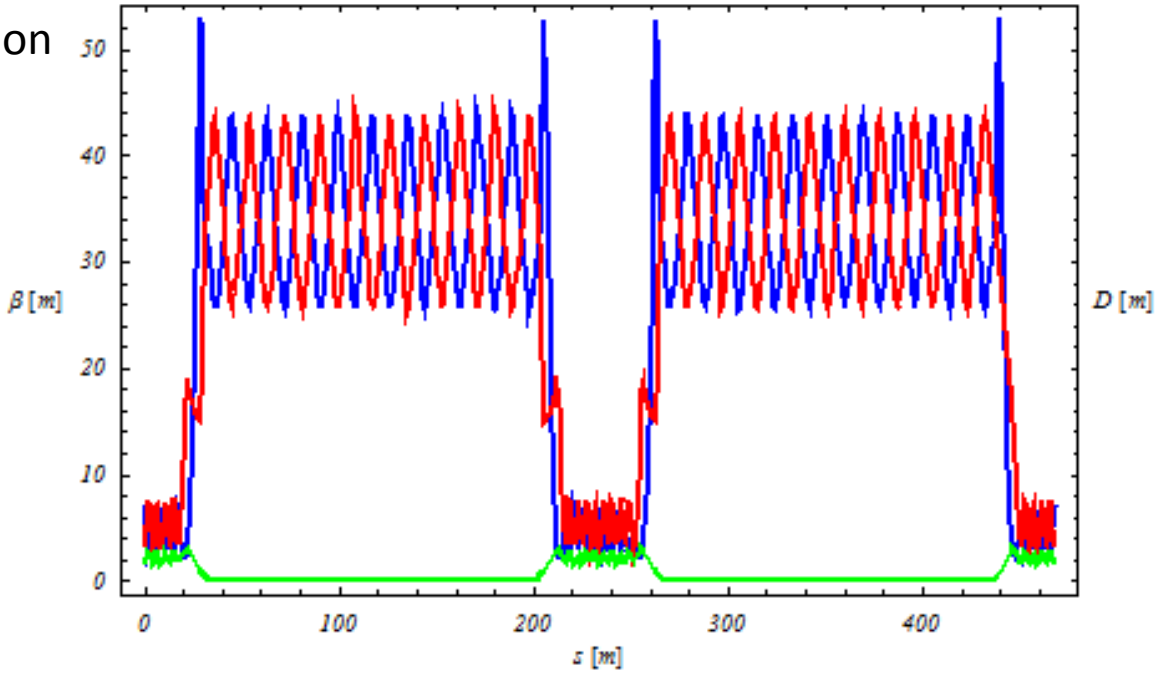
# NuMAX




Ring with FDDF cells in the production section

Ring with FODO cells in the production section



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# Comparison (for fraction of parameters)

| | nuSTORM-FODO | nuSTORM-RFFG | NuMax |
|---|---|---|---|
| Circumference [m] | 480.3 | 500 | 468.2 (582) |
| Dipole B field [m] | 4.14 | 3 (in combined f. mag.) | 3 |
| Dipole total aperture HxV [m] | ~0.3x~0.27 | ~0.96x~0.56 (in c.f.m.) | ~0.42x0.13 |
| Production straight magnet aperture [m] | ~0.6 | ~0.6 m | ~0.35 |

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# Common technologies/elements

- SC magnets with large aperture
  - We know we can make them
  - ...but we want to make them efficiently
  - We want combined function magnets (for FFAG)magnets with large aperture
- Large aperture room temperature quads (or FFAG-type)
- Pion/muon beam instrumentation
  - To measure orbit, beam size, current, tune.
- Beam instrumentation for the neutrino beam (from the muon storage ring ) monitoring
  - To measure divergence
  - To monitor beam energy

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# R&D Goals

- Large aperture SC magnets
- Large aperture room temperature magnets
- Muon beam instrumentation
- Beam instrumentation for the neutrino beam (from the muon storage ring ) monitoring

Red means essential!