

MASTER PROJECT GROUP PRE-MEETING

WINTER TERM 2024/2025, ROOM IW0.632

2024-10-11, FRIDAY, 1 P.M.

Agenda

- Short pitch on the offered topics
- Introduction to mandatory pre-tests
- Q&A

Topic #1: Electrical Drive Simulation

Drivetrain Nonlinearities

GEM

```
def f_mln_ill(lambda, m_n, m_n_phi, m_n_ib_ilo, v1, v2):
    # generate matrix
    mln_ib_ill = np.ones_like(m_lambda)
    # fill all NaN's in the original matrix also in the copy with NaN's
    mln_ib_ill[np.isnan(mln_ib_ilo)] = np.nan
    # calculate the other data points
    mln_ib_ill[~np.isnan(mln_ib_ilo)] = mln_ib_ilo[~np.isnan(mln_ib_ilo)]
    return mln_ib_ill
```

Python Programming

GitHUB

Topic #2: ML Inspired System Excitation and Optimal Control

System Excitation

Differentiable Predictive Control

Python Programming

GitHUB

Topic #3: Theoretical and Practical Comparison of Different Core Loss Modeling Methods (Classical vs. Machine Learning)

Python Programming

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```

Inductor Manufacturing

Laboratory Measurements

FEM simulation