

Sascha Lüdeke  
ESR-1, WP-1

02/2020

## Current Project

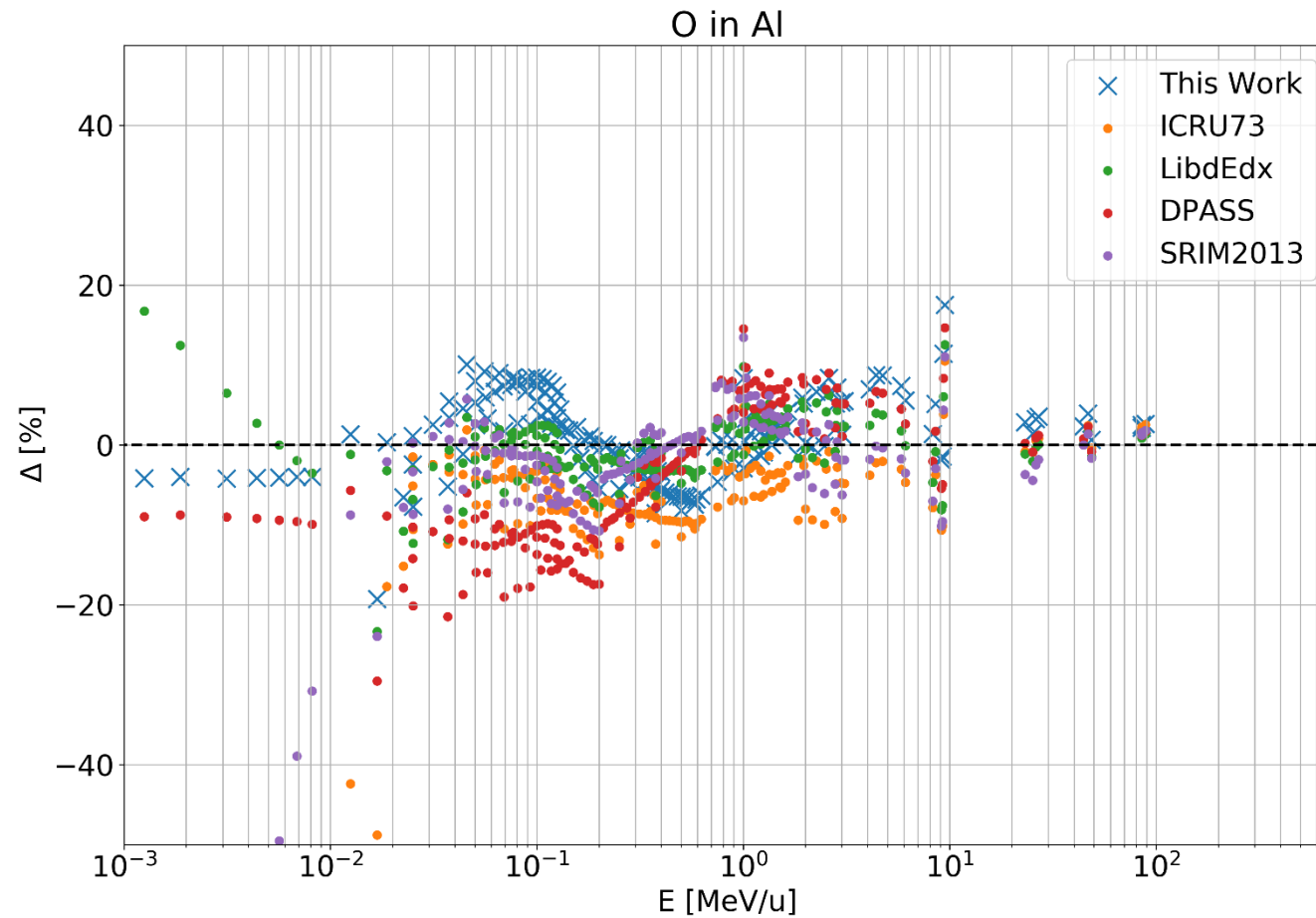
### Direct Ionization Effects of Low-E Protons and Heavy Ions

- Linear energy transfer model of particle radiation in matter
  - Semi empirical two-parameter Model
    - Modification to Bloch's Stopping Number
  - Comparison to experimental data and other models
- Modelling of radial energy distribution
  - Focused on ionization processes
  - Characterizes the ion track

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# Current Project

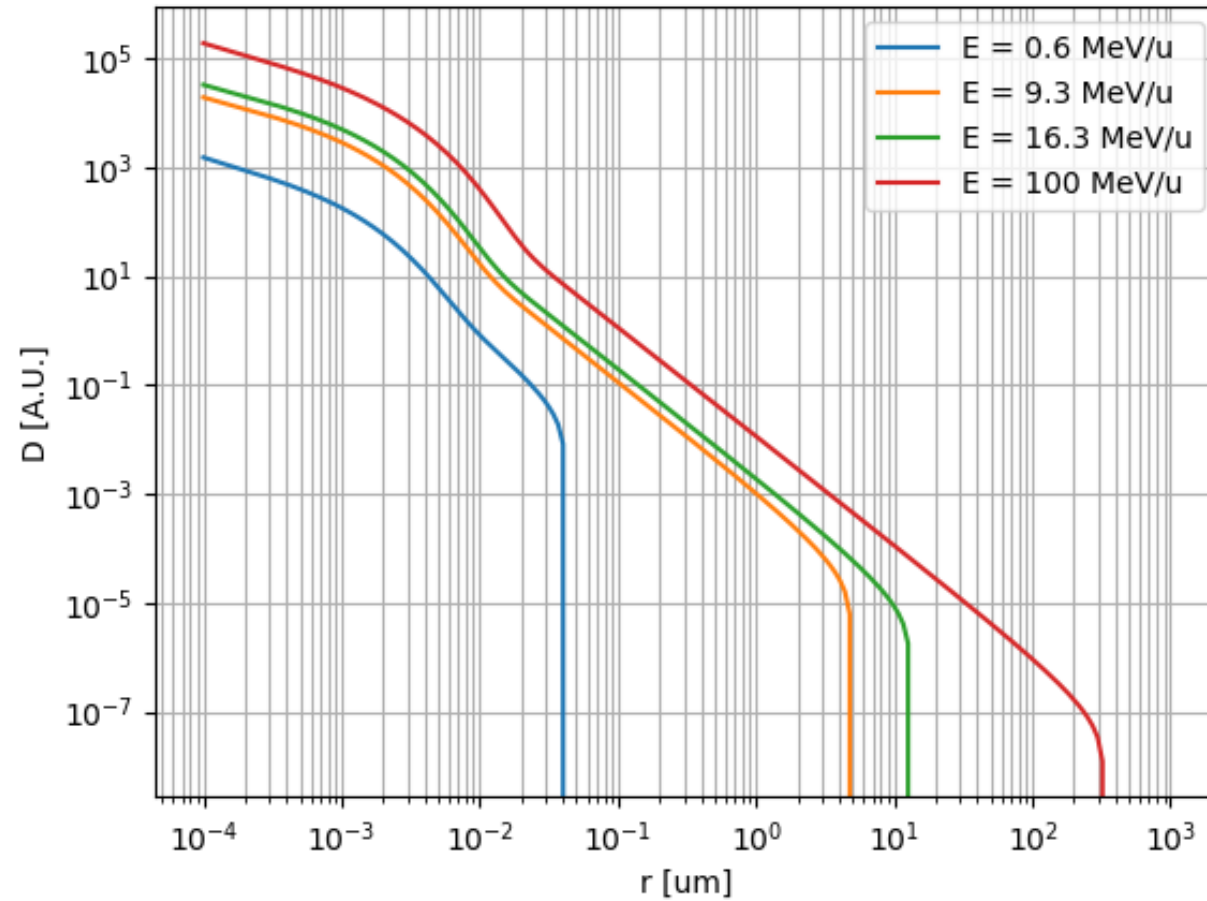
## LET Models in comparison with experimental data over projectile Energy



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# Current Project

## Qualitative Ion Track structure for different kinetic energies in H2O



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## Planned Project

### SEE Cross-section modelling based Sensitive Volume (SV) approach

- Combining SV approach with LET and ion track model
  - Minor adjustment to establish algorithms
- Prediction of SV dimensions from experimental data
  - Elimination of extensive MC Simulation between iterations

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## Planned Project

### Time of Flight (TOF) Measurement of RADEF Ion Cocktails

- TOF measurement of new RADEF ion cocktail
  - LET in silicon
- Validation of the LET model discussed earlier
- Implementation in LET experimental database and JYUs ECIF (European Component Irradiation Facilities) Calculator

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## Planned Project

# ESTIMATION OF PROTON INDUCED SINGLE EVENT RATE IN VERY DEEP SUBMICRON TECHNOLOGIES

- Cooperation with Alter Technology, Toulouse France, for ESA
- Investigation and modeling of SEEs and Rate Predictions for 28nm Technology
  - Focus on Low Energy Protons

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