Neutrino Interactions and Standard Model Group - getting started

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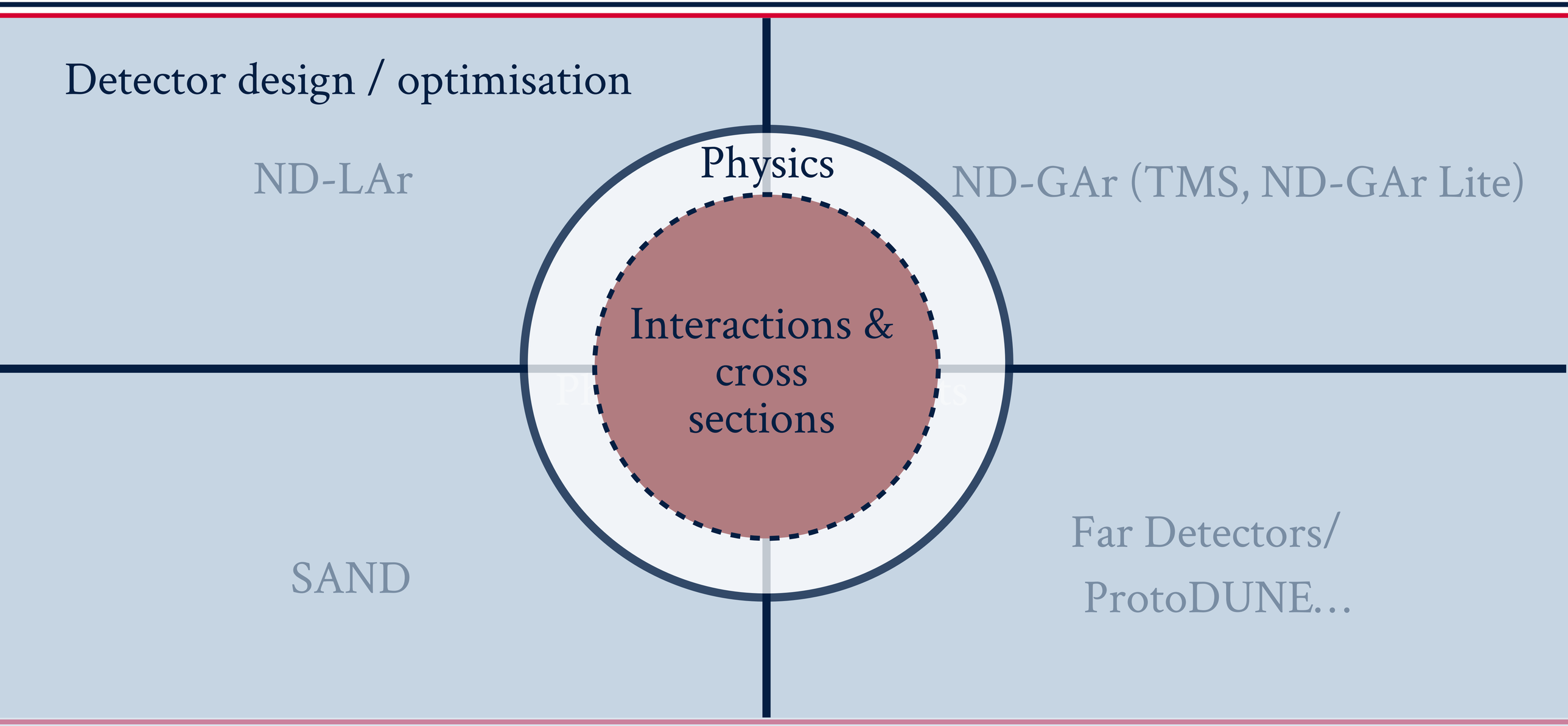
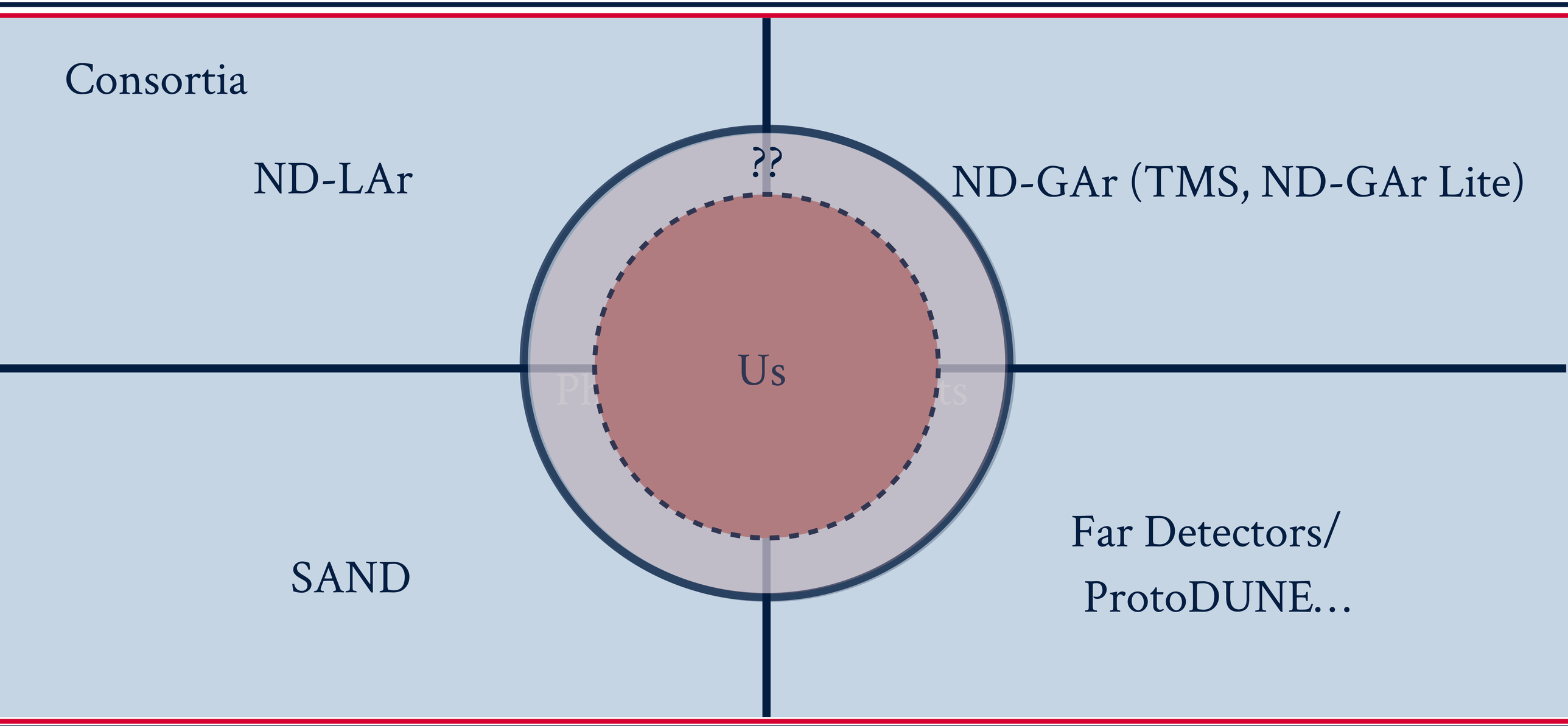
Our new group

ND-LAr	ND-GAr (TMS, ND-GAr Lite)
SAND	Far Detectors/ ProtoDUNE…

Our new group



Our new group



Goals of the group

- **Newest working group**
  - Cross-sections section of ND CDR
  - DUNE Neutrino Interactions Workshop
  - Get up and running as proper group!
- Bring together **cross-section / physics analyses in one place**
  - Fewer meetings?!
  - Share knowledge/techniques between detectors (and SBND, MicroBooNE, MINERvA…?)
  - More standardised analysis procedures / techniques (where appropriate)
- **Help ND consortia** where physics informs design decisions
- Help evaluate cross section-related **uncertainties**
- Make some interaction sensitivity predictions for the ND TDR
  - Get full (simulated) **cross section "measurements"**
- Good analysis **opportunities** for students

https://wiki.dunescience.org/wiki/Neutrino_Interactions_and_Standard_Model_WG

You're doing this already!

ND-LAr

R Berner - π^0 selection
J Wolcott et al - ν_μ CC inclusive
X Lu, K Yang - Transverse kinematic imbalance

ND-GAr

S Jones - Pion multiplicity studies
L Bellantoni - Coherent π production
F Battisti - Multi-track finder for TKI (sim/reco?)
B Irwin - Low energy protons
L Emberger - μ/π separation; π^0 production

SAND

S Gwon, G Yan - low ν
K Jung - CC π^0
C McGrew - CC inclusive

Anything we're missing?

Let's work together

(in the end we want physics measurements…)

What can we do for you?

- How do cross section tuning parameters/uncertainties affect the LBL analysis?
- Which are the most significant uncertainties? (see DIRT-II project)
- Which detectors will help us constrain cross section models?
- What else…?