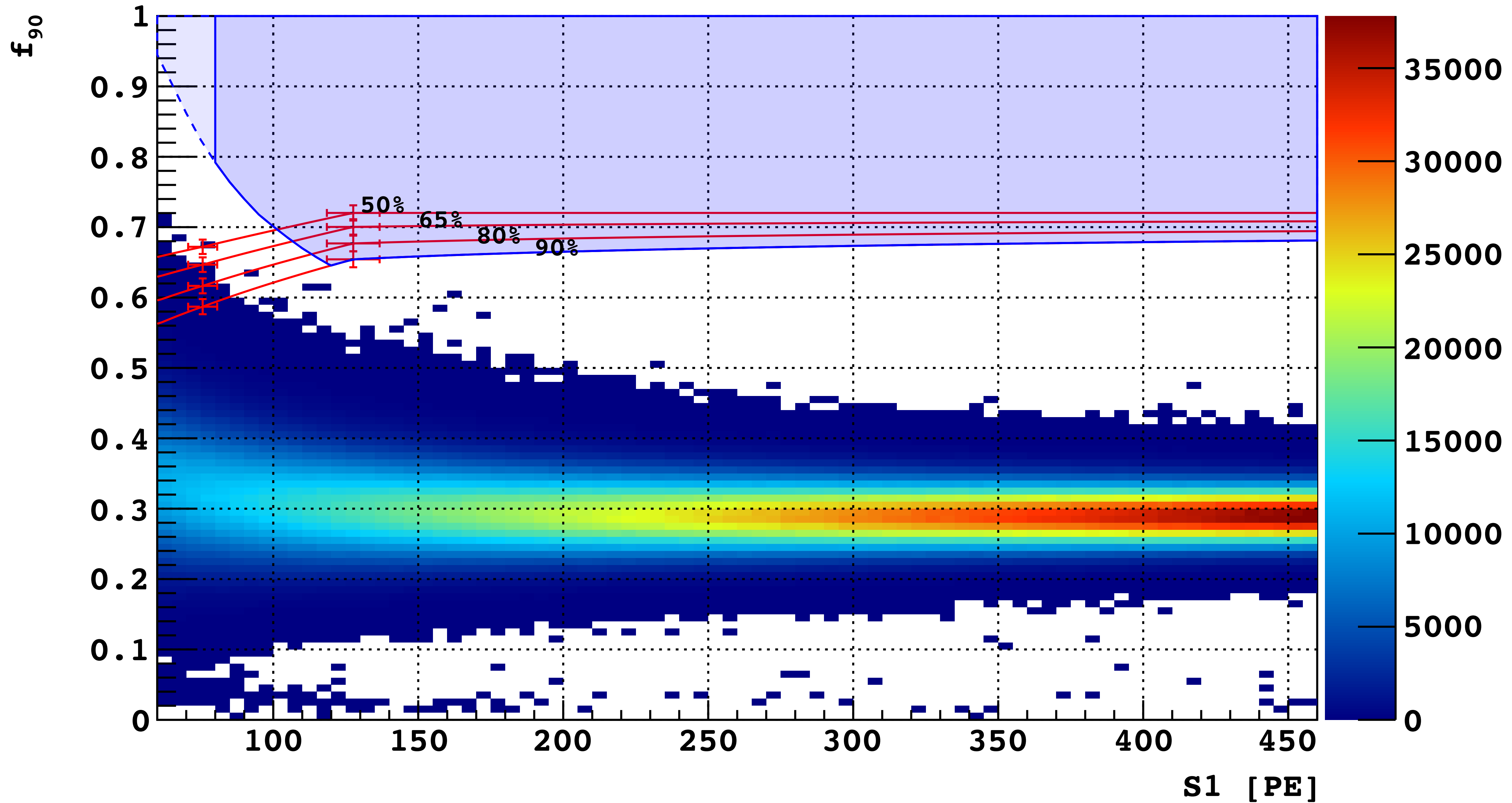
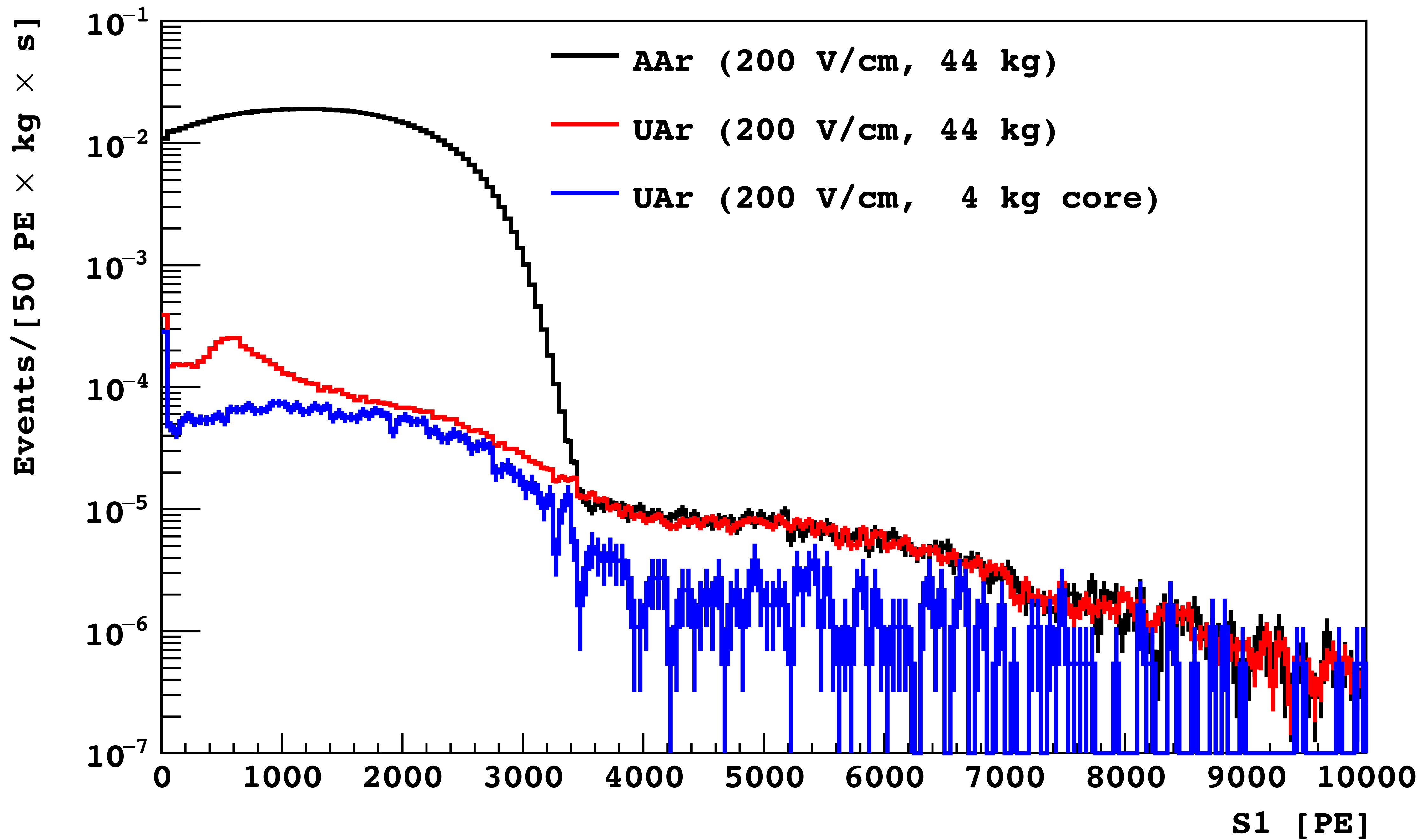


The DarkSide Program for Direct Dark Matter Searches and Its Broader Impact

Cristiano Galbiati
Princeton University and INFN Milano
Consiglio di Sezione INFN Milano
July 8, 2015

1,422 kg×day - zero background - S1 only







Size Comparison

The proposal is to construct a 350 meter tall distillation column at a mine called Suruci in Sardina Italy to separate Argon 39 from Argon 40.

325 meters Eiffel Tower

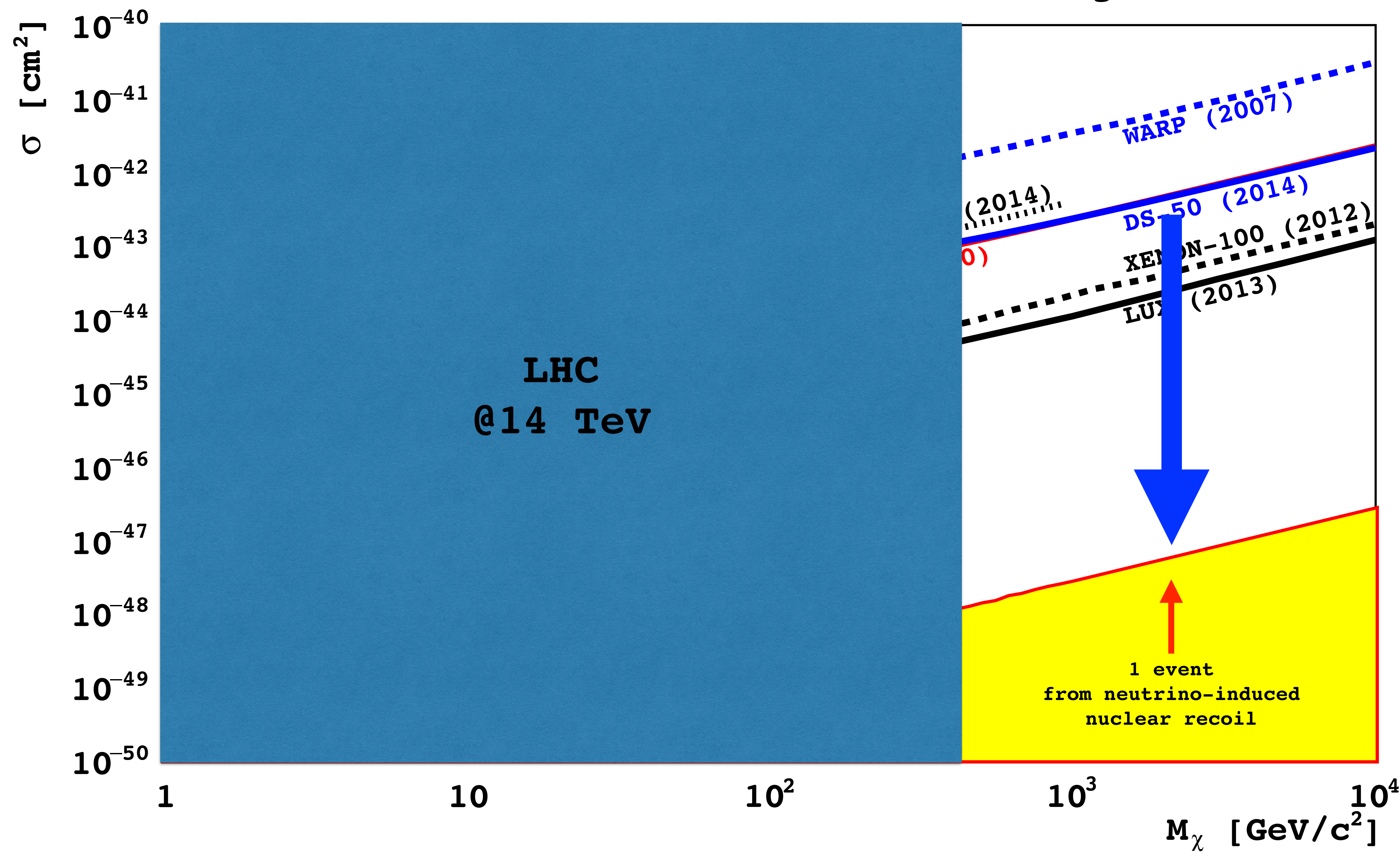
Seruci Distilation Column 350 mete

Man

3D π

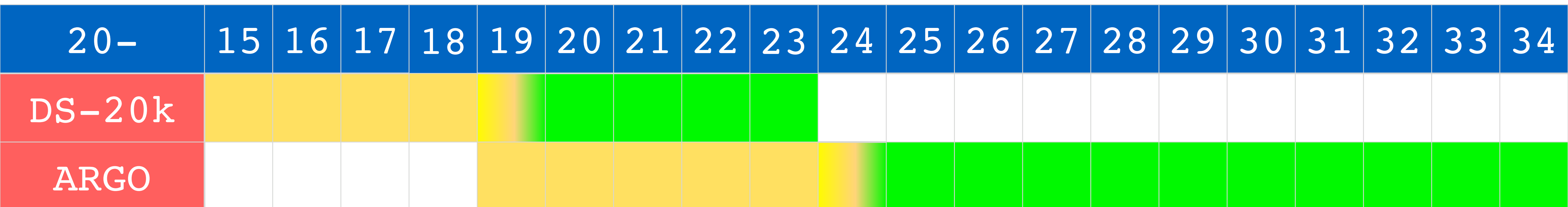
- ~~Not Positron Emission Tomography~~
- 3-Dimensional high resolution direct Positron Imaging
 - 3D Positron Imaging = 3D π

third best dark matter limit at high masses



DarkSide-20k

a 20-tonnes fiducial dark matter detector
start of operations at LNGS within 2020
100 tonnextyear background-free search for dark matter



DarkSide

a 300-tonnes depleted argon detector
start of operations at LNGS within 2025
1,000 tonnextyear background-free search for dark matter
precision measurement of solar neutrinos

Dipartimento	Nome	Cognome	FTE Fraction	Role
INFN MI	Mauro	Citterio	0.20	Dirigente Tecnologo
INFN MI	Cristiano	Galbiati	0.50	Professore Ordinario
PoliMi/ChemEng	Giorgia	De Guido	1.00	Dottoranda
PoliMi/ChemEng	Ilaria	Dormia	0.00	Laureanda Magistrale
PoliMi/ChemEng	Gaia	Gibertoni	0.00	Laureanda Magistrale
PoliMi/ChemEng	Gabriele	Lodi	1.00	Dottorando
PoliMi/ChemEng	Stefania	Moioli	1.00	Post Doc
PoliMi/ChemEng	Laura	Pellegrini	0.70	Professore Ordinario
Polimi/Civile	Raffaele	Ardito	0.50	Professore Associato
Polimi/Civile	Alberto	Castellani	0.00	Professore Emerito
Polimi/Civile	Luca	Martinelli	0.50	Professore Associato
Polimi/Civile	Federico	Perrotti	0.50	Professore Ordinario
PoliMi/Electronics	Giulia	Acconcia	1.00	Dottorando
PoliMi/Electronics	Mauro	Buttafava	1.00	Dottorando
PoliMi/Electronics	Niccolò	Calandri	1.00	Dottorando
PoliMi/Electronics	Sergio	Cova	0.00	Professore Emerito
PoliMi/Electronics	Massimo	Ghioni	0.70	Professore Ordinario
PoliMi/Electronics	Angelo	Gulinatti	0.70	Professore Associato
PoliMi/Electronics	Rudi	Lussana	1.00	Dottorando
PoliMi/Electronics	Pietro	Peronio	1.00	Dottorando
PoliMi/Electronics	Ivan	Rech	1.00	Professore Associato
PoliMi/Electronics	Alessandro	Ruggeri	1.00	Dottorando
PoliMi/Electronics	Mirko	Sanzaro	1.00	Dottorando
PoliMi/Electronics	Davide	Tamborini	1.00	Dottorando
PoliMi/Electronics	Alberto	Tosi	0.70	Professore Associato
PoliMi/Electronics	Federica	Villa	1.00	Post Doc
PoliMi/Electronics	Franco	Zappa	1.00	Professore Ordinario
PoliMi/Energia	Lelio	Luzzi	0.50	Professore Associato
PoliMi/Energia	Mario	Mariani	0.50	Professore Associato
PoliMi/Energia	Marco Enrico	Ricotti	0.50	Professore Ordinario
Totale			20.50	

Tasks

- Management (Spokespersons, Level-1 Manager)
- Aria/Urania
- SiPM
- Mechanical design of DS-20k
- Preparation for mass tests of SiPM and tiles in 2017-18

Richieste Finanziarie

- Missioni (t.b.d.)
 - Shifts DS-50 (1 m.p.)
 - Operations DS-50 (3 m.p.)
 - Spokesperson
 - Level-1 Manager
 - Collaboration meetings
- 2016 production runs @LFoundry with TIFPA e POLIMI technologies (t.b.d.)
- LN2 cryostat for mass tests of SiPM and tiles

The End