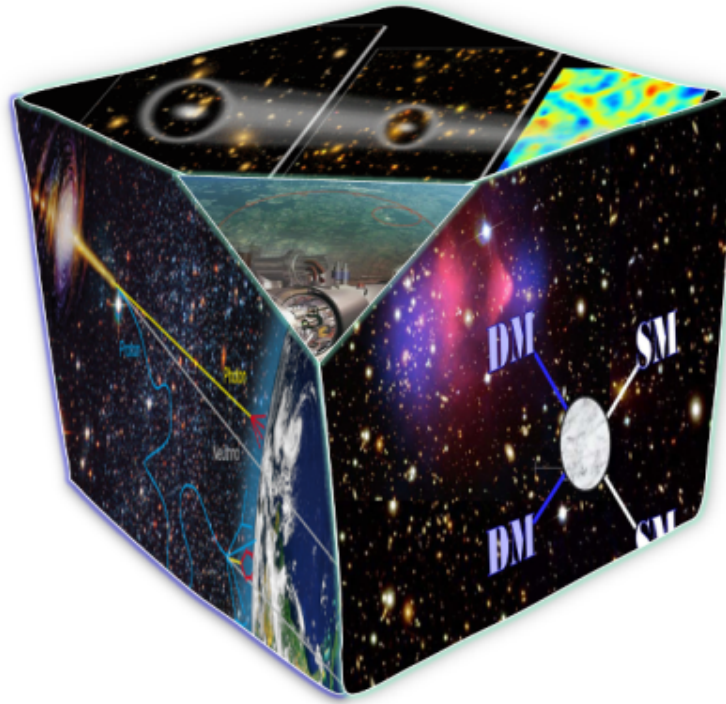


2020



Brazilian Community Report on Dark Matter

Farinaldo Queiroz
IIP-UFRN & ICTP-SAIFR fellow

PERSPECTIVE...

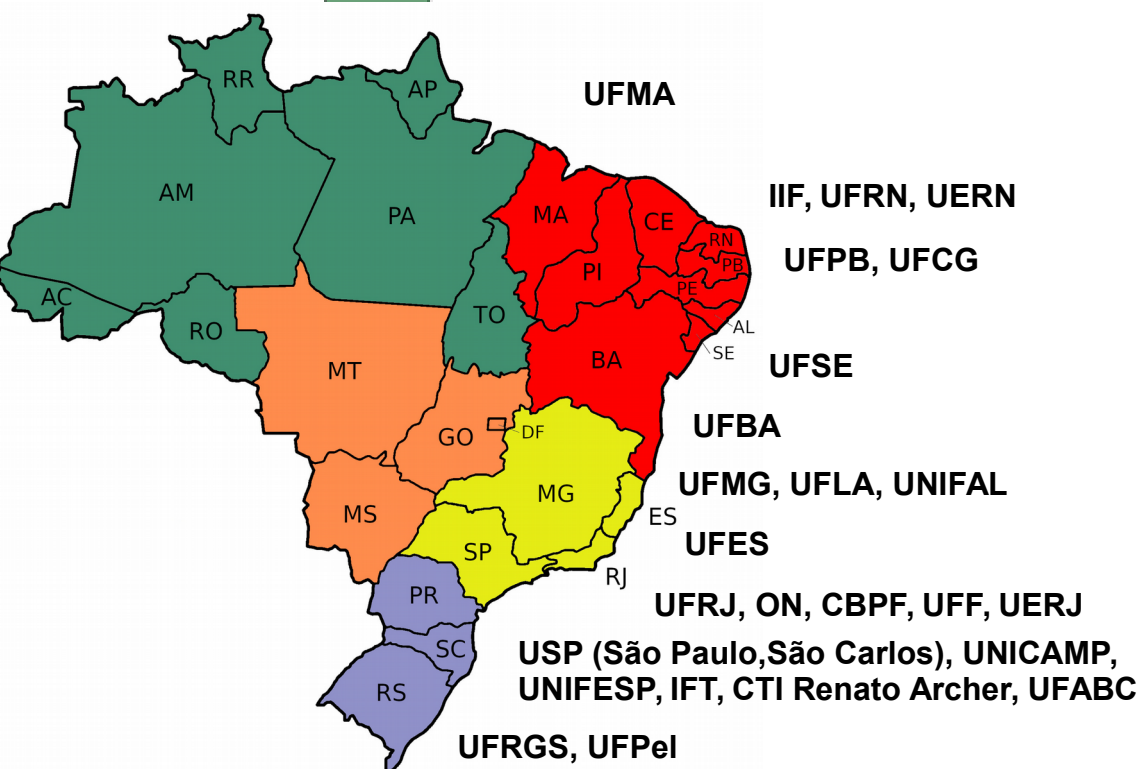


1990-2000: ~ 10 papers

2000-2010: ~ 75 papers

2011-2015: ~ 191 papers

2016-2020: ~ 315 papers



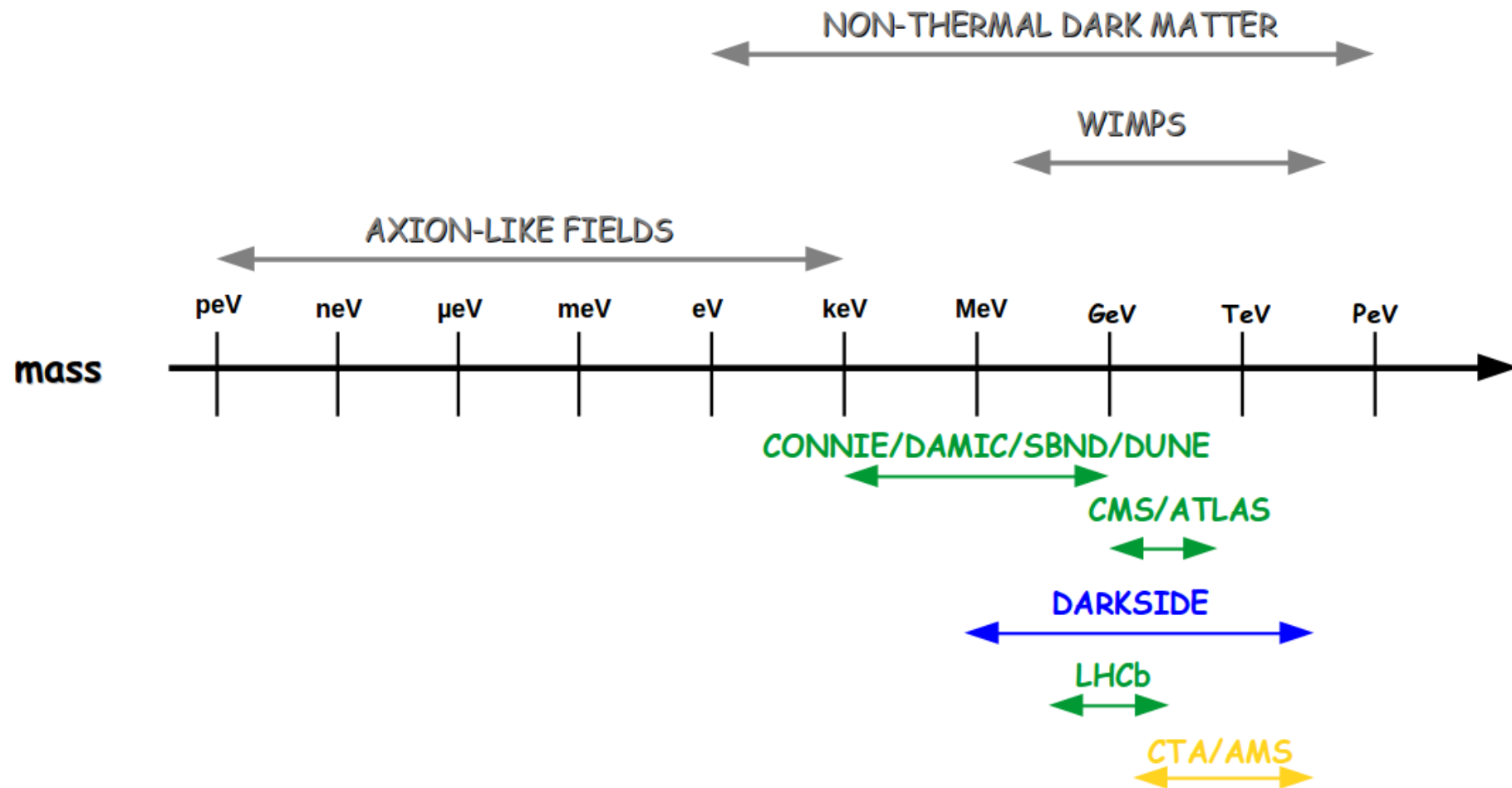
SIMPLE, DES, D0, DAMIC, CMS, LHCb, ATLAS, Darkside, COSINE, CONNIE, NA64, PHENIX, SBND, DUNE, MAGIC, HESS, AMS, CTA

2011-first dark matter section in the National Meeting on Particles and Fields !

Most papers are related to coupled dark energy models not focused on dark matter. This trend is changing

Growing field in the country





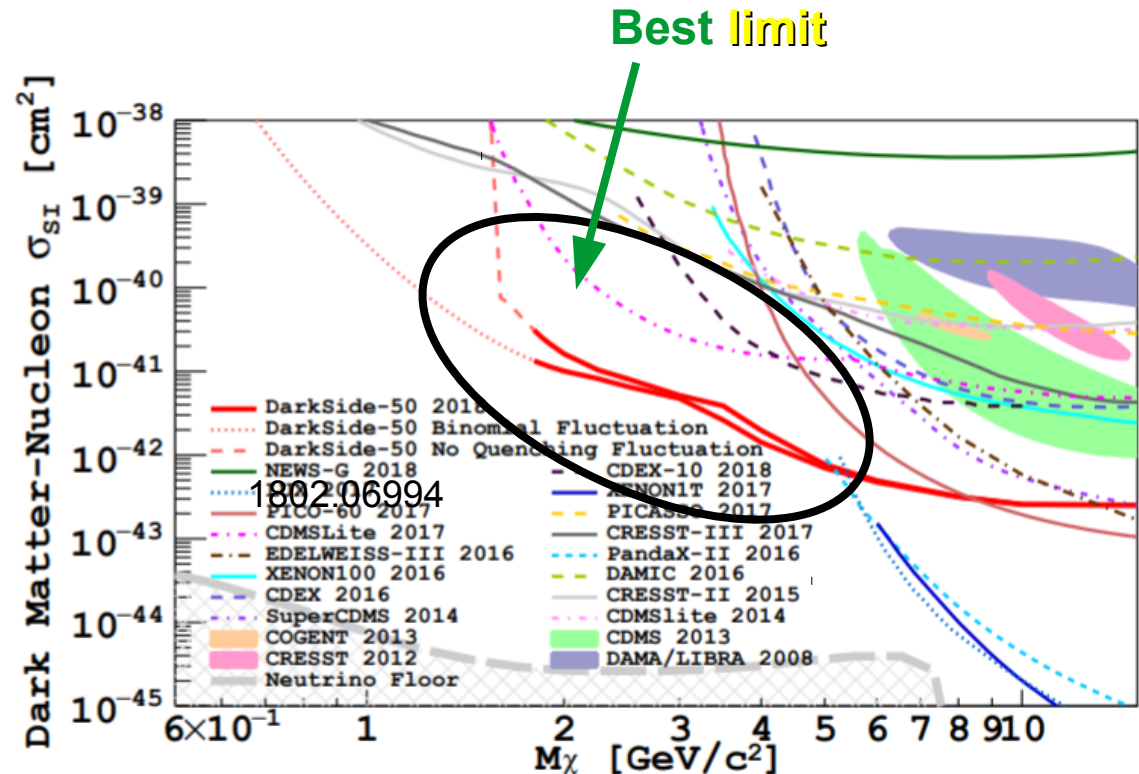
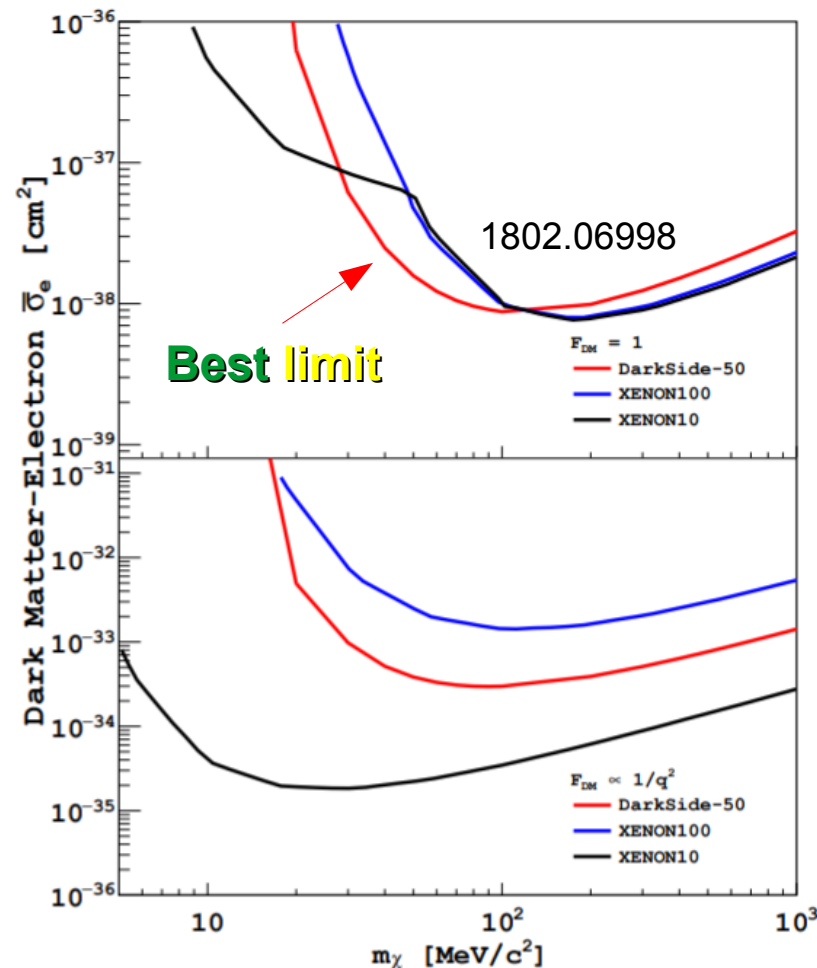
Mass range of the dark matter candidates and the corresponding experiments with Brazilian involvement

***Active Groups**

DARKSIDE (one group), CTA, CMS

Brazilians playing a role

Direct Detection: DARKSIDE (Ivone's group- USP)

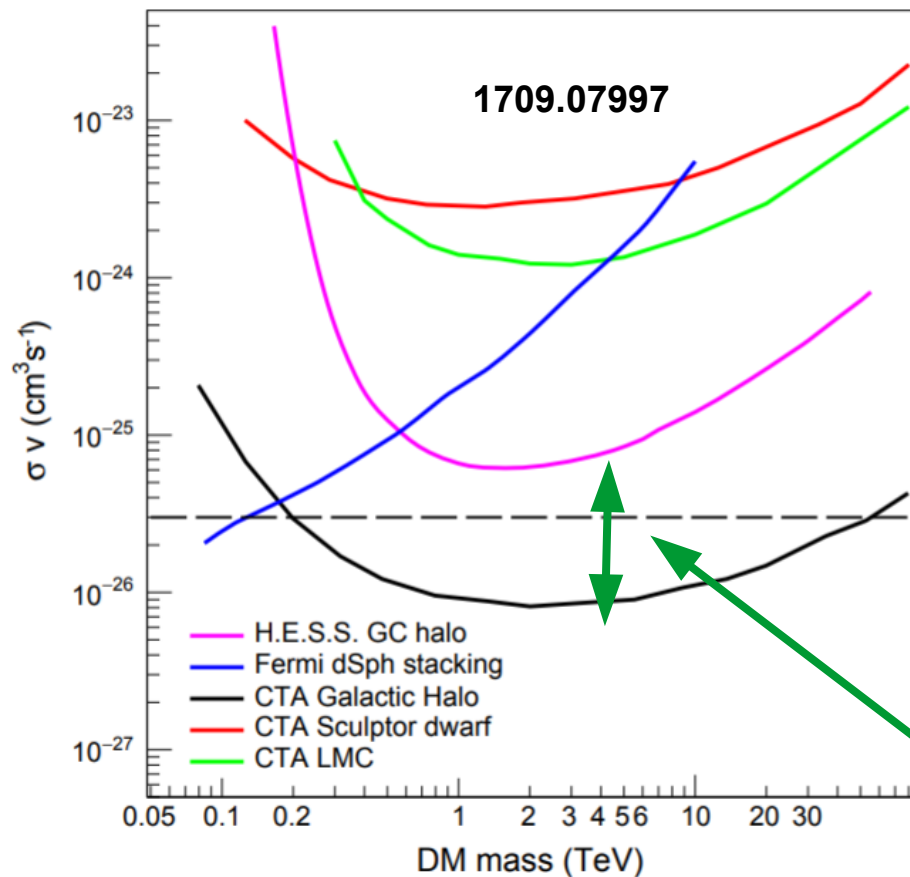


Phys.Rev.Lett. 121 (2018) 8, 081307

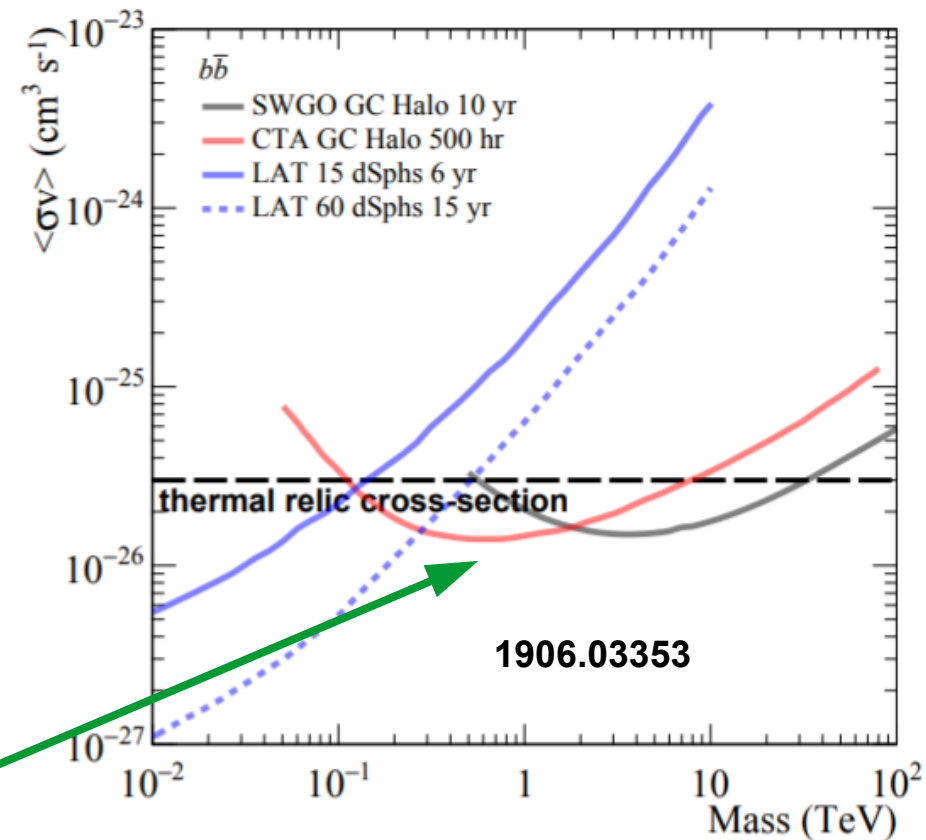
**New phase Darkside-20k will
feature 20 tons of LAr**

Brazilians playing a role

Indirect Detection: CTA (Vitor's group)



Best
Sensitivity



Future

The major global observatory for very high energy gamma-ray astronomy over the next decade and beyond

Secluded dark matter
Gamma-ray lines
Semi-Annihilations

*CMS – Novaes/Tomei @ IFT
Gil da Silveira @ UFRGS
Mercadante @ UFABC



WIMPs

CONNIE - @ CFET Angra dos Reis, CBPF, UFRJ



Light mediators

DAMIC – UFRJ (J. Torres Machado)



Light dark matter

A community effort is needed!

Few people are engaged on dark matter experiments!

FUNDING?

Schools, workshops, conferences are being organized in the country!