

María del Valle Varo

past light cone



born in 1995 to
a couple of
The Beatles' fanatics



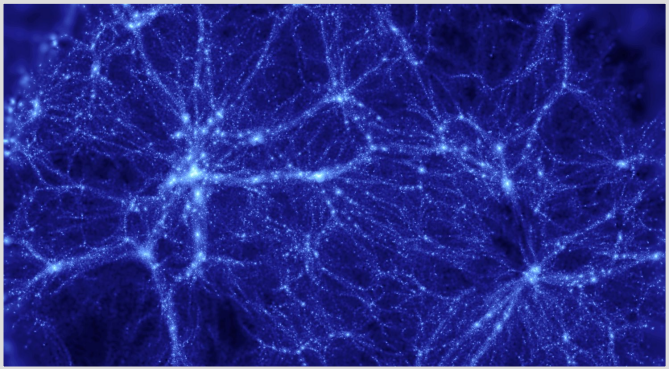
El Escorial, Madrid, Spain

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Master Thesis Computational Physics

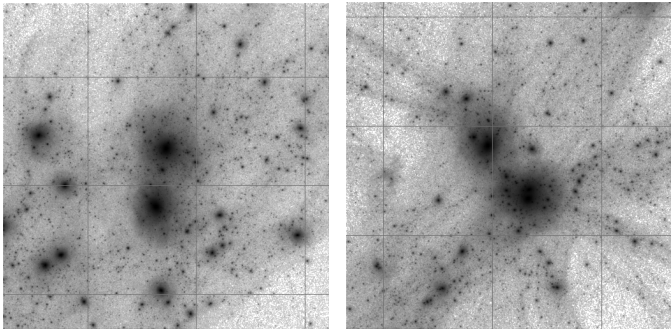
- Comparing models of Interactive Dark Matter against LCDM.



Modified Boltzmann equations

$$\dot{\theta}_\gamma = k^2\phi + k^2(\frac{1}{4}\delta_\gamma - \sigma_\gamma) - \dot{\kappa}(\theta_\gamma - \theta_b) - C_{DM-\gamma}$$

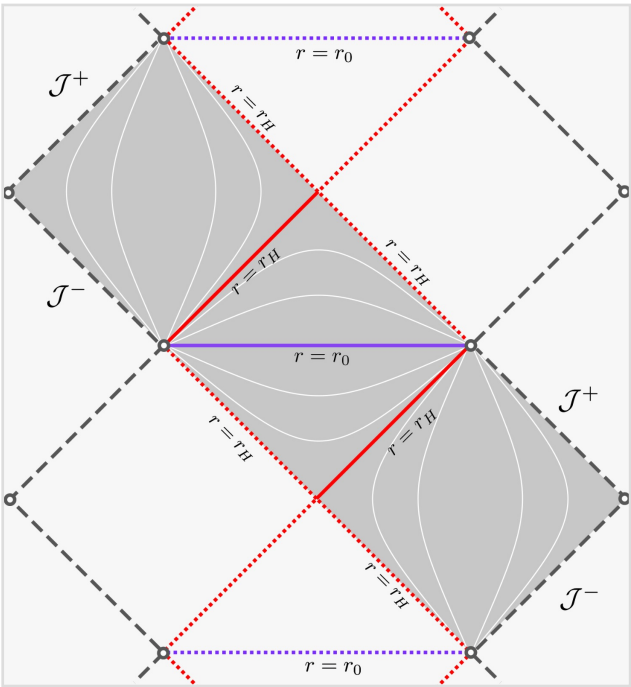
$$\dot{\theta}_{DM} = k^2\phi - H\theta_{DM} - C_{DM-\gamma}$$



PhD Thesis Applied Mathematics

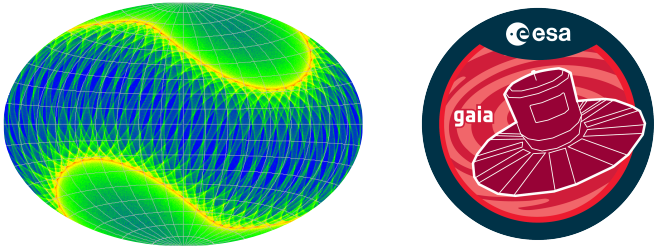
- Resolution of PDE of Field Theories

$$\begin{array}{ccc} (\Sigma, \gamma, D) & \xrightarrow{(\iota, n^\alpha)} & (M, g, \nabla) \\ \uparrow (\bar{\jmath}, \mu^a) & & \uparrow (\jmath, \nu^\alpha) \\ (\partial\Sigma, \bar{\gamma}, \bar{D}) & \xrightarrow{(\bar{\iota}, \bar{m}^\alpha)} & (\partial M, \bar{g}, \bar{\nabla}) \end{array}$$

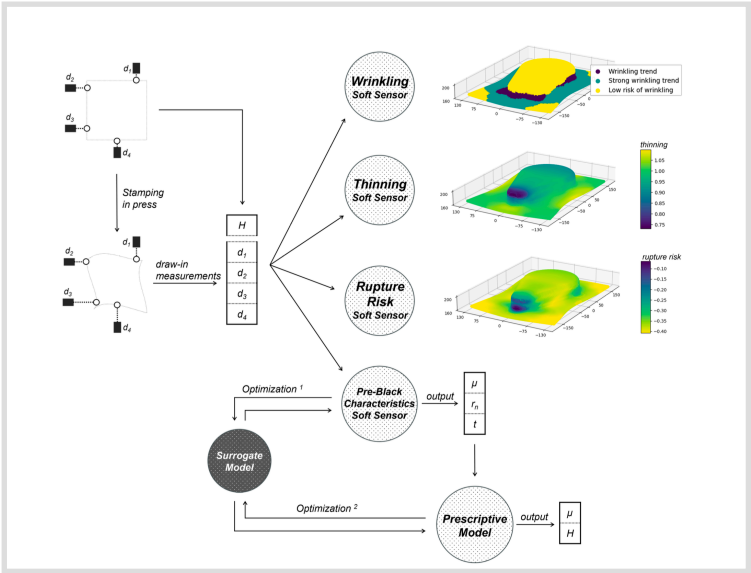


Internships

- Gaia Mission - Scanning Law

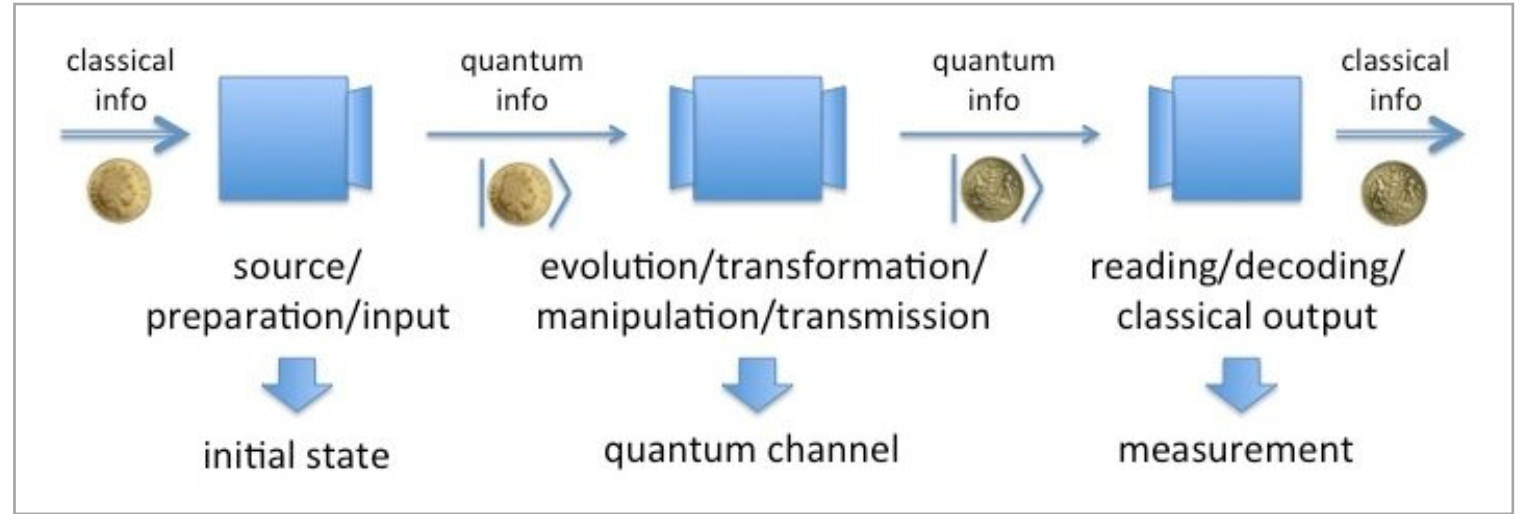
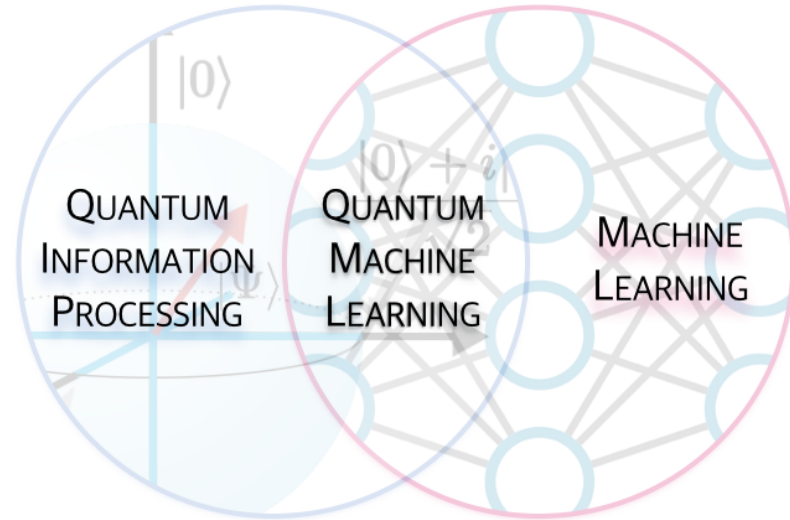


- Tecnalia Research - Machine Learning

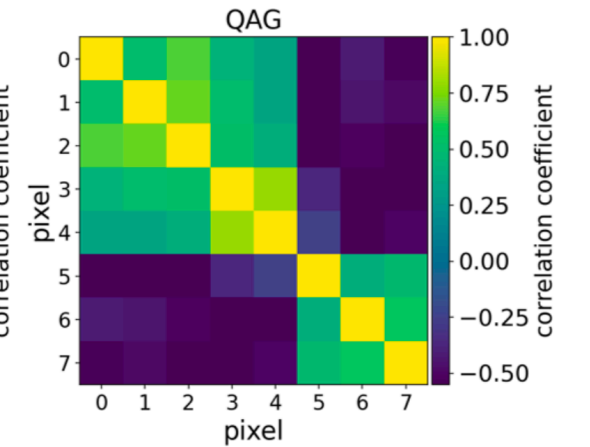
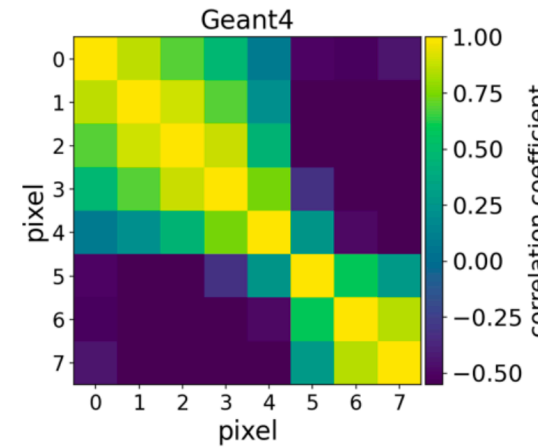
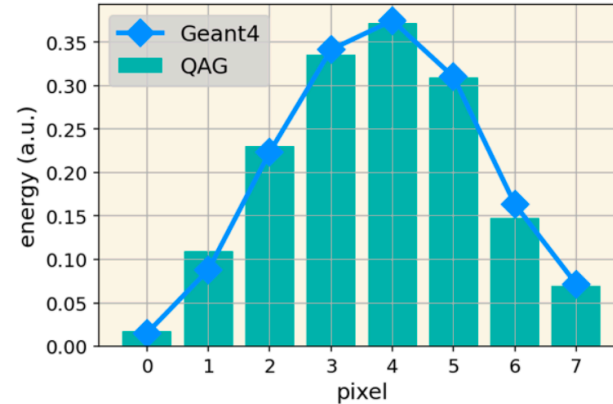
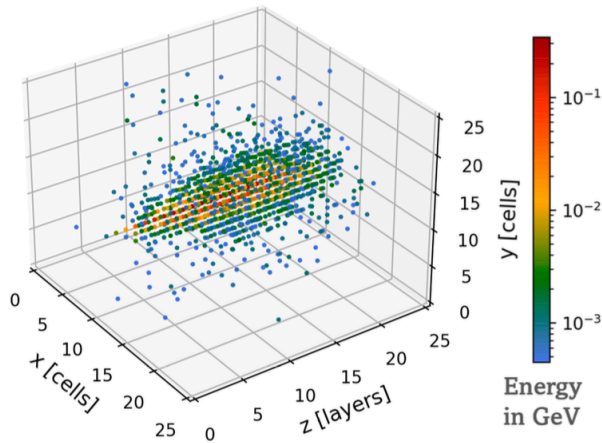


Quantum ML for HEP

Simulating calorimeter images



source: CNQO



AI can read your mind

A diffusion model (DM) to reconstruct images from human brain activity obtained via functional magnetic resonance imaging (fMRI).

(preprint) <https://doi.org/10.1101/2022.11.18.517004>

