## Astro-DMTSP The Astronomy Dark Matter Test Science Project

The Astro-DM TSP project proposes to extend the work of the ESCAPE Dark Matter Test Science Project by creating common tools and services that facilitate joint experimental and observational constraints on dark matter properties. By leveraging the capabilities of major RIs, such as the Vera Rubin Observatory and ESA's Euclid Space Telescope, it will integrate thematic astronomical services into the EOSC.

## Challenge

There are currently no shared tools or services available for observational astronomers to interpret the results of direct detection experiments, nor vice versa. This gap highlights the need for a collaborative framework to integrate these disciplines effectively.

## Solution

New tools for analysing strong gravitational lensing, providing unique insights into dark matter. The project will use existing services from ESCAPE and ESA (incl. the ESCAPE data lake and VRE), while producing documentation on dark matter constraints, modelling Euclid's spectroscopic data on strong gravitational lenses, and developing advanced imaging tools.

Science Clusters' Action for Research & Society



**ESCAPE Astronomy, Nuclear and Particle Physics** 

## **Scientific Impact**

The tools developed will support future research across multiple major RIs, including HST, JWST, and NASA's Roman space telescope. The project will also promote FAIR data principles, ensuring sustainable reuse and reproducibility.

Partners



https://www.oscars-project.eu/projects/astro-dm-tsp-astronomydark-matter-test-science-project







