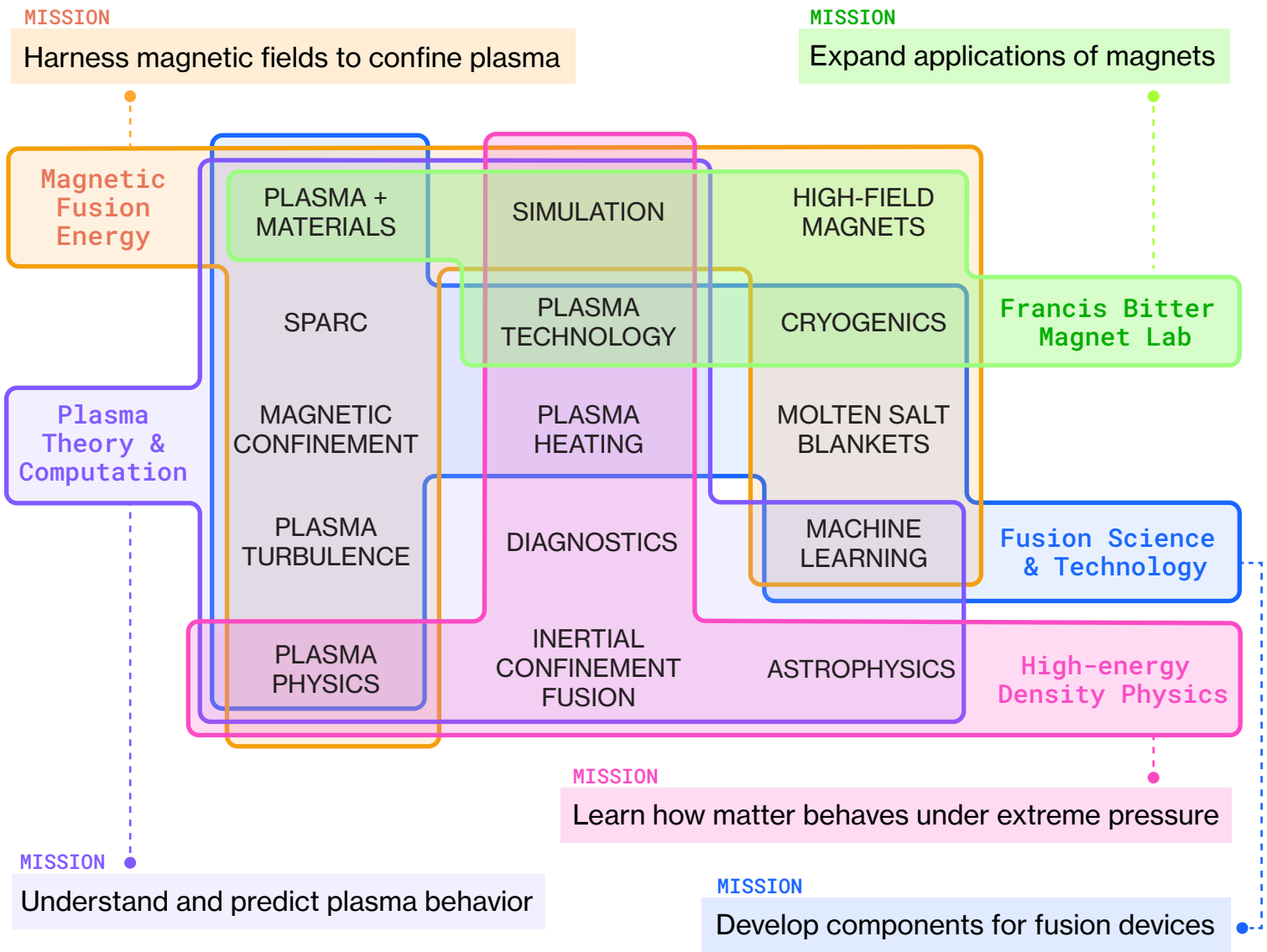




We know many hands make light work.

At the PSFC, over 200 people in five research divisions are working to reach the goal of practical fusion energy.



The PSFC has more than 80 active research projects.

We're especially excited about new initiatives to discover extra-durable materials for commercial fusion, to create components that can breed fusion fuel, to develop deep geothermal drilling capabilities, and to better predict plasma behavior, faster, using AI and quantum computers.

We're spearheading these efforts to advance fusion discoveries as well as benefit the broader scientific community.

Cyclotron

Key to the arrival of practical fusion

A particle accelerator capable of rapidly testing materials' suitability for use in commercial fusion applications.

- allows testing, selection, and elimination of candidate materials in months, not years.
- the PSFC would be the first facility in the world with this kind of testing capability.

LIBRA • Liquid Immersion Blanket - Robust Accountancy

One fusion component with three essential functions

Developing a lithium "blanket" that surrounds plasma vessels and captures neutrons emitted by fusion reactions.

- blanket shields fusion electromagnets from neutron damage, prolonging their life.
- emits energy as heat, which can be used to power standard steam turbines.
- lithium in blanket reacts with neutrons to produce tritium for fusion fuel.

Deep Geothermal Energy

Expanding green energy research at the PSFC

Adapting PSFC-originated plasma heating technology to produce renewable energy with a tiny footprint.

- laser-like millimeter-wave "drill" can bore kilometers into the earth, vaporizing rock to produce steam for turbines.

Advanced Computing

Predicting and controlling plasma behavior

Leveraging AI and machine learning to better predict plasma behavior and optimize fusion device design.

- quantum algorithms in development could speed up plasma simulations, possibly exponentially.
- progress in classical and quantum computing benefits fusion and also many other fields.

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