

# Faculty of Nuclear Sciences and Physical Engineering Czech Technical University in Prague



FNSPE main building in Prague



FNSPE insignia

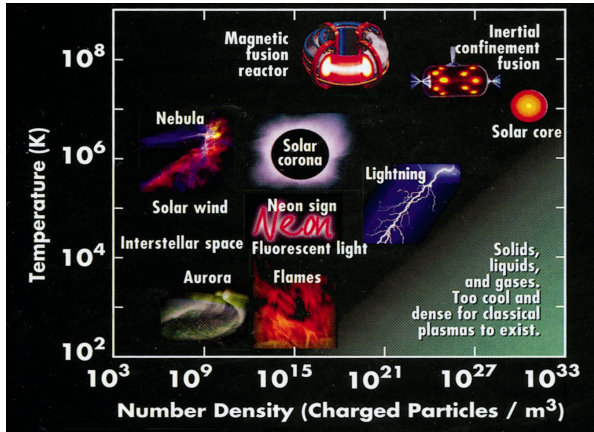


CTU ceremony hall

- CTU founded in 1707 by the emperor Joseph I.
- CTU approximately 2200 staff members, 16000 undergraduate students, 9000 graduate and PhD students. ( $\approx$  2500 foreign students).
- FNSPE established in 1955 with the mission to train new experts for the emerging Czechoslovak nuclear programme.
- FNSPE currently a centre of education and research specialised in boundary fields between modern science and their applications in technologies, medicine, economy, biology, ecology, and other fields.

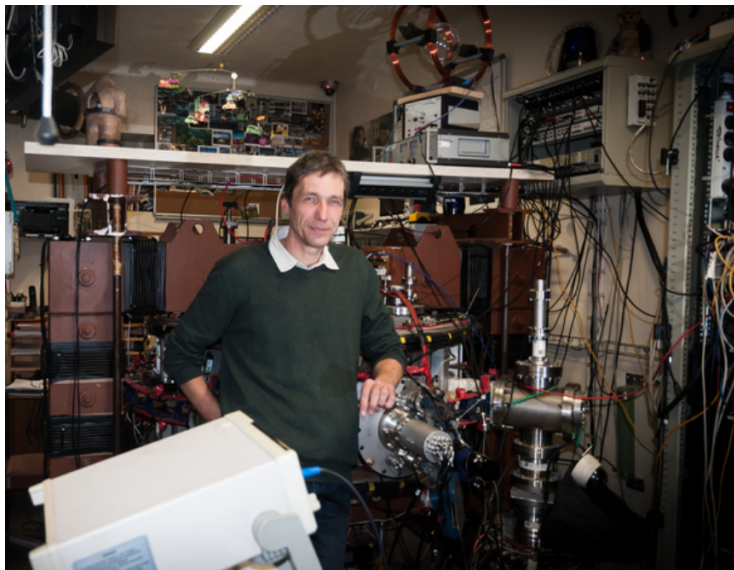
Scientific group/ education specialization

# The Physics of Plasma and Thermonuclear fusion

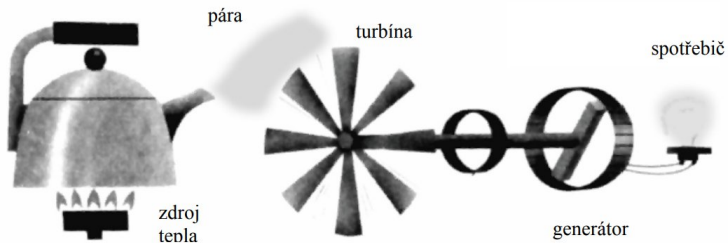


99.999 % Universe is in the Plasma state of matter

# Tokamak GOLEM & Vojtěch Svoboda



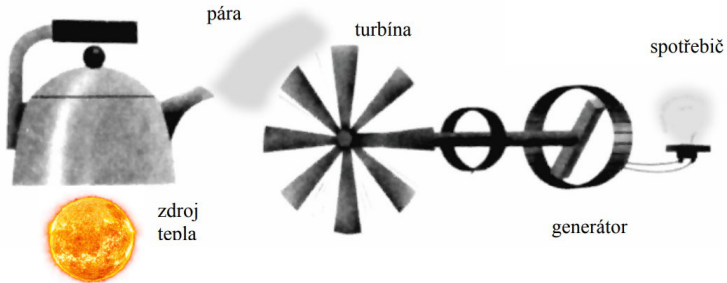
# Thermal power plant - basic principle



The question:

?? WHAT TO BURN ??

# Small $\mu$ Sun in the terrestrial conditions ??

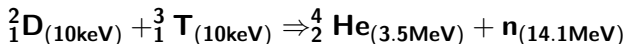
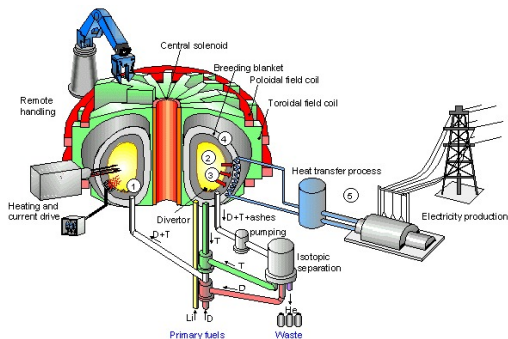
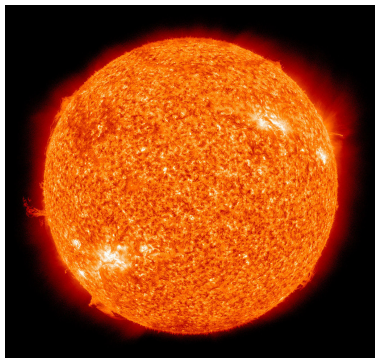


## The challenge



**Can we harness the energy  
that drives the Sun/stars?**

# Tokamak mission: to create $\mu$ Sun in the terrestrial conditions



The task: to heat (up to 100 million degrees) DT fuel and confine it (up to 30 years) in the high temperature plasma state of matter to produce He & fusion energy.