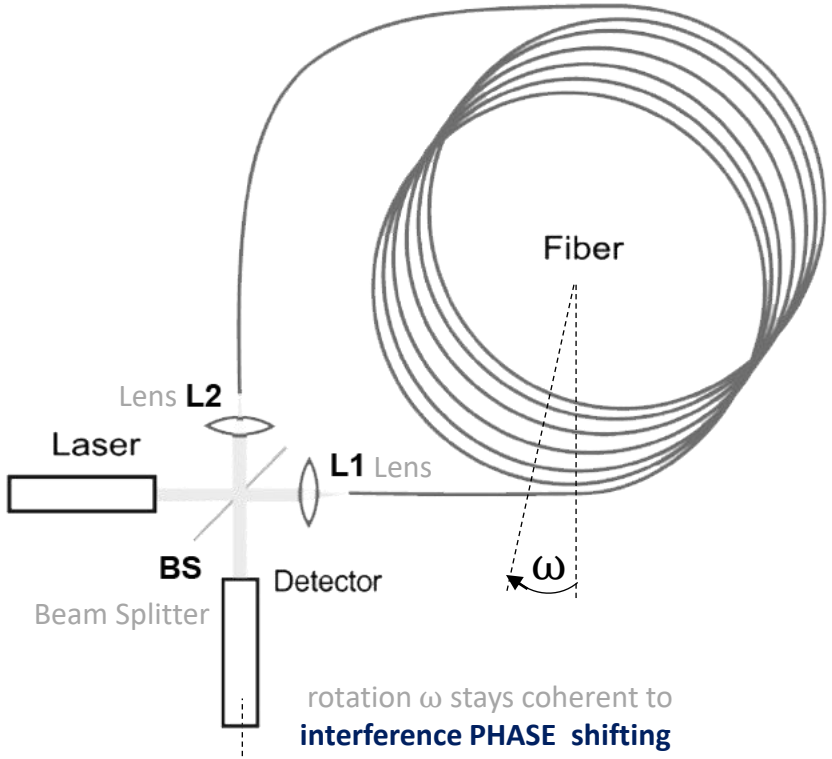
ELPROMA
www.fosrem.eu

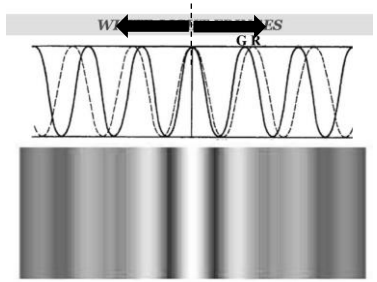
Mulitpurpose Earth & Space Ultra Sensitive Photonic Gyroscope and Seismogrpah

FOSREM®

The next generation IMU FOG & and Seismograph for modern Rotary Seismology Science

A milestone in ultra-accurate linear velocity measurements
that based on angular velocity measurements with resolution up to $10E^{-9}$ rad/s





FOSREM Introduction

- Uses **Sagnac effect,** independent on **Earth Gravity**, for which the only **frame of reference is the Einstein's spacetime**…
- Operates as a result of the measurement of a difference between two interfering laser beams, propagating around long optical path, in opposite direction. Sensor can sense movement with the resolution of ½ size of Helium atom…
- **3 functionalities**:
  - ✓ **3-axial gyroscope** highly accurate IMU for autonomous vehicles Earth & Space, nuclear medicine, calibration of telecom RF channels at fast (relativistic) moving objects. …
  - ✓ **3-axial seismograph** detection of destructive effects of **rotational forces**
  - ✓ **Synchronised Networking Sensors (Sensor Fusion)**
    - precisely locates source (center) of any kind of ground tremors from a very long distance
    - Microseismic reflection (both: natural & artificial shocks), helps to identify fingerprints of geological resources such as: thermal water, gas & oil, carbon…
    - scientific researches on Earth Rotation, Tsunami, UTC time-scales, Tides, Geology

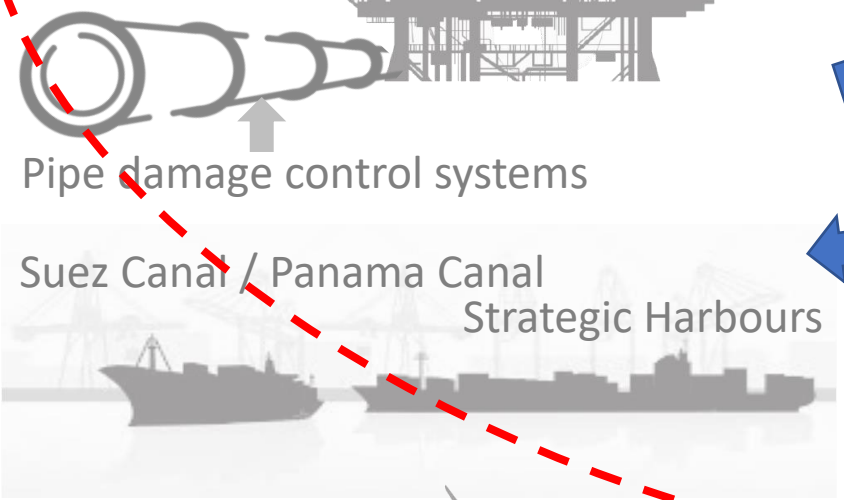
Rotational seismology & microseismic reflection

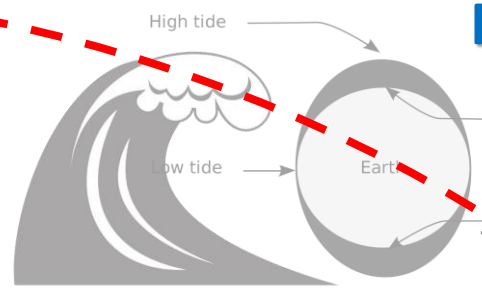
Protecting people, complex civil structures, business & peace

Searching (Microseismic Reflection):

- Carbon
- Thermal Water
- Gas & Oil

Pipe damage control systems

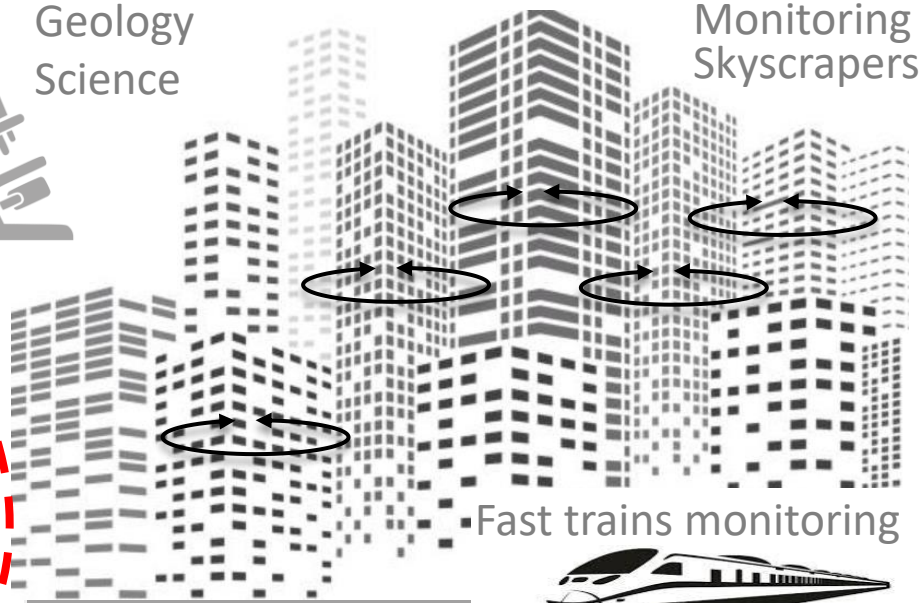




Sea level
Tides

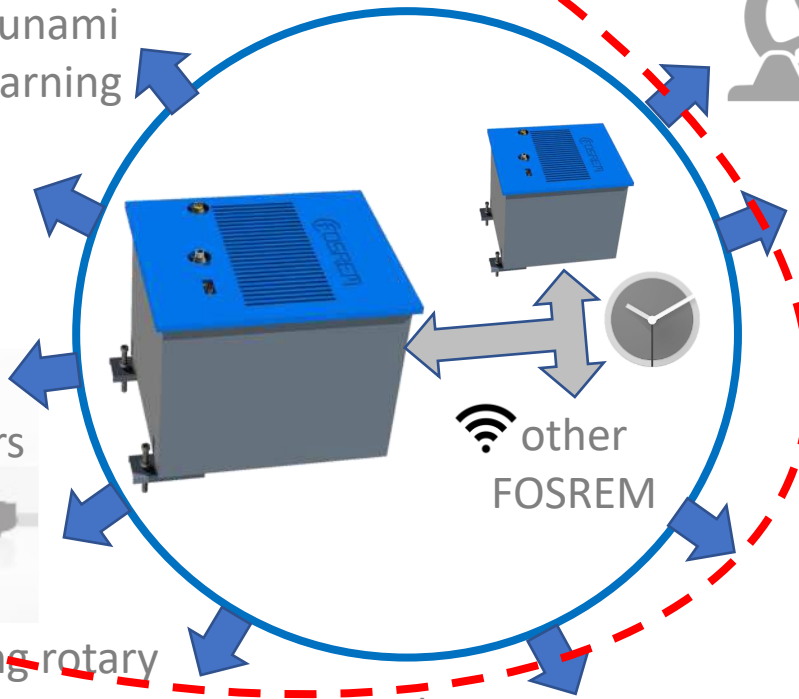
Tsunami
Warning

Geology
Science



Monitoring
Skyscrapers

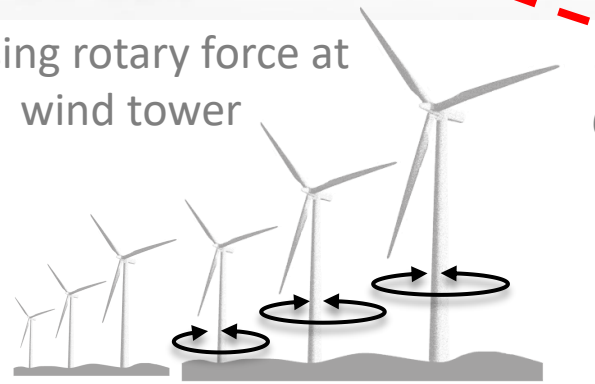
Fast trains monitoring



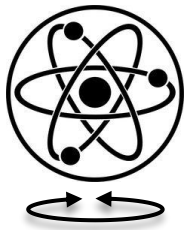
other
FOSREM

Monitoring Tunnels
(e.g., EURO Tunel)

Sensing rotary force at
wind tower



Sensing rotary
@nuclear plants



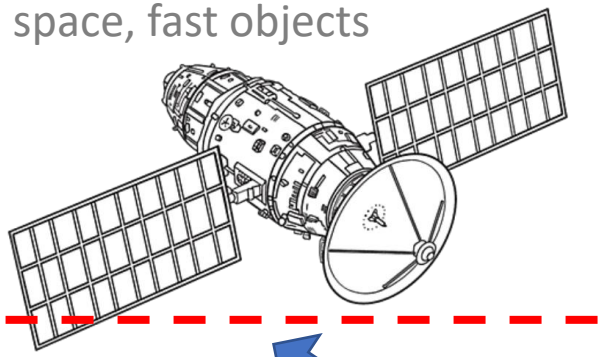
combat accuracy
automatic measurement systems

IMU & Gyroscope

Inertial navigation, angle metering, RF Calibration

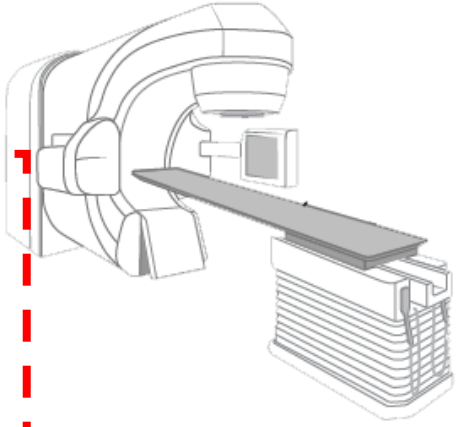
3 Functions in Space:

- Calibrating RF instruments in space, fast objects
- IMU gyro navigation
- Relativistic TIME transfer

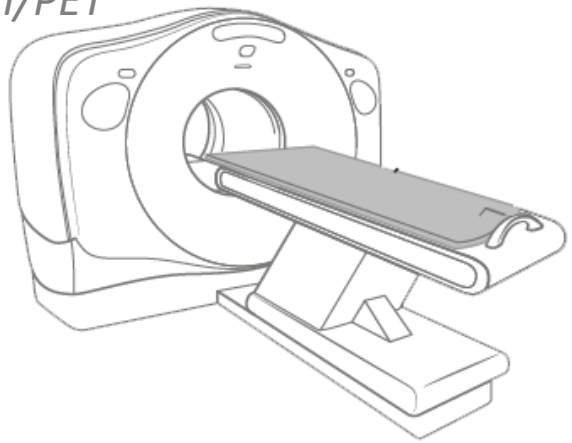


Nuclear Medicine

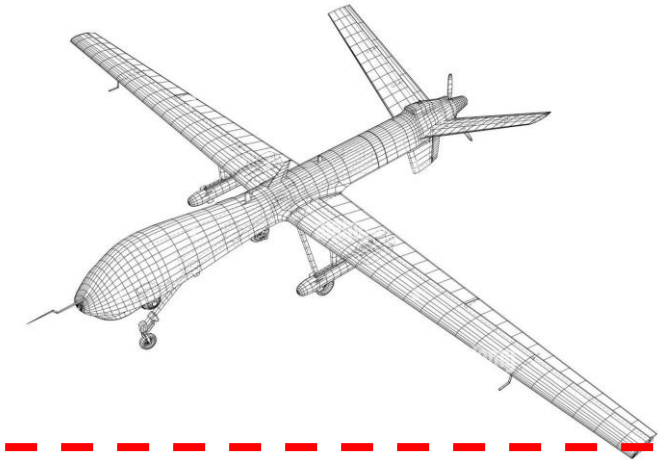
Radiotherapy

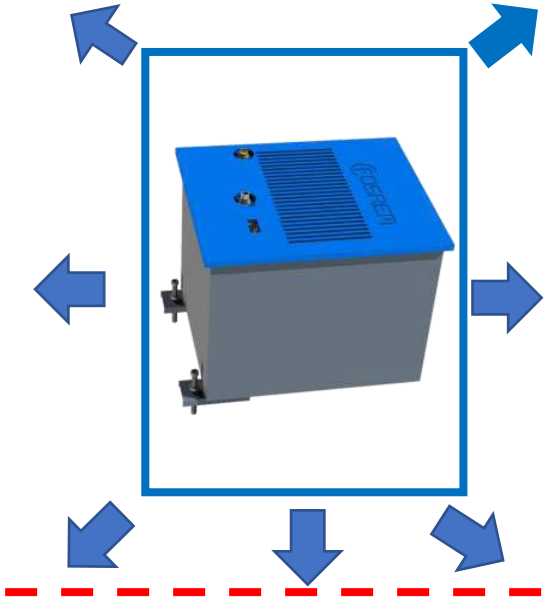


MRI/PET

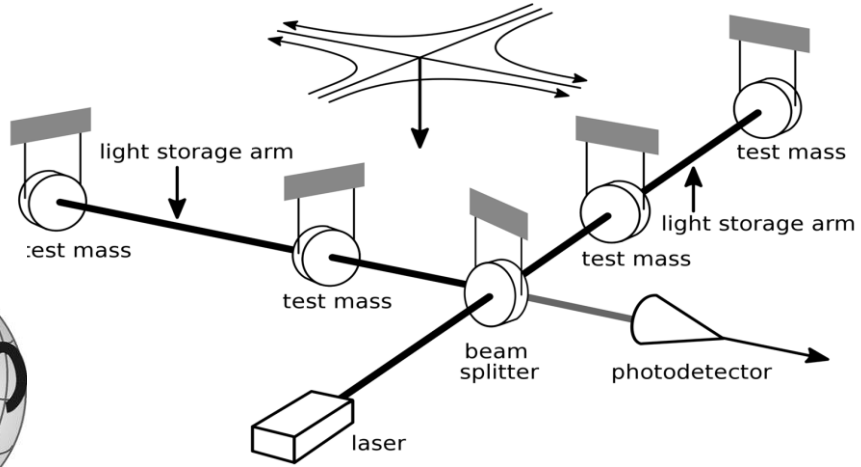


IMU for Drones
(Long autonomous operations)

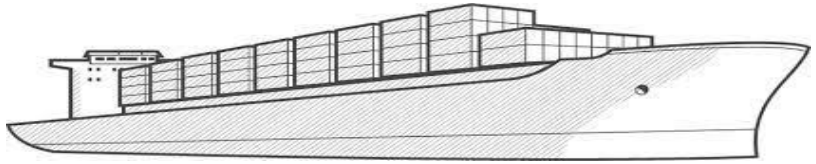




Science – Space-time research - gravitational waves



Autonomous cargo-ships IMU navigation



Pipe damage control Robots

IERS - Earth Rotation Fluctuations