2021 International Conference
October 22-23, 2021
Vatican City

Prof. Gérard Mourou
Nobel Prize for Physics, 2018

”Being" rather than Having",

St. John Paul II in Centesimus Annus

“We must create a life-styles in which the quest for truth, beauty, goodness and communion with others for the sake of common growth are the factors which determine consumer choices, savings and investments.

“*Equally worrying is the ecological question which accompanies the problem of consumerism and which is closely connected to it”.*

“”To guaranty peacefulness harmony and survavibility , our society needs to develop a:

clean, abundant and safe energy source”

However Conventional Renewable Energies, Wind, Solar, Tidal, Hydroelectric will be far from enough to guaranty a future to our society without Nuclear Energy.

Nuclear Thorium cycle, not Uranium, could be our best candidate

1. Nuclear fuel like thorium is very abundant and spread over the planet.
2. It will fulfil the needs of 10B people for 10000 years avoiding the geopolitics conflicts that we know.
3. Zero-CO_2 emission, no pollution, no green- house effect and no impact on climate.
4. Thorium is very energy efficient, few million times coal.
5. Small amount of nuclear waste with a shorter radiotoxicity time hundreds years instead of hundreds thousands years
6. Thorium reactor cannot runaway.
7. Plutonium cannot be produced from thorium, eliminating nuclear proliferation.

Subcritical Fission with ADS Thorium / Uranium

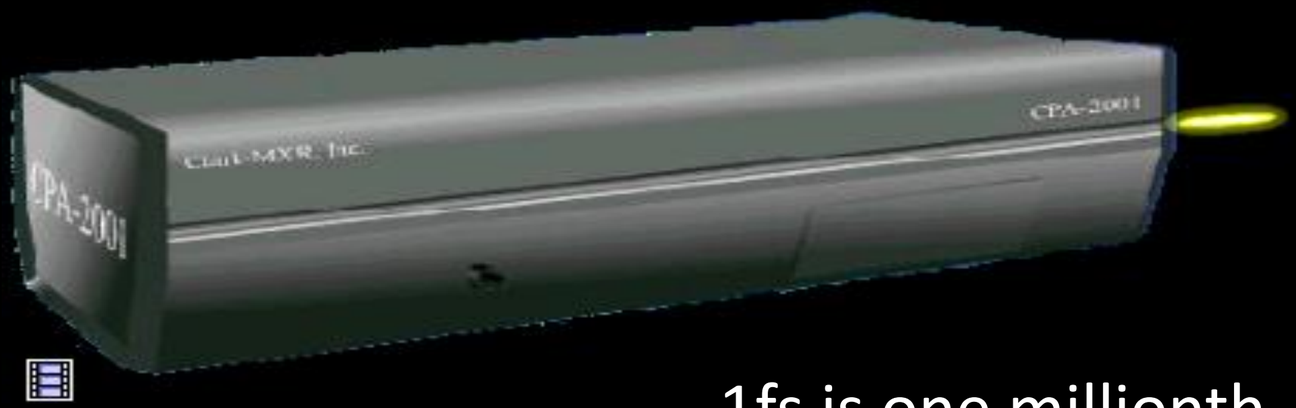
1 GW Power Plant
producing 8 Billion kWh /year

Coal = 100 Trains
3M Tons Coal
1km3 of CO2

300 Tons Uranium
0 liter C02

1 Ton Thorium
0 liter C02

Why Extreme Light for Nuclear Energy?

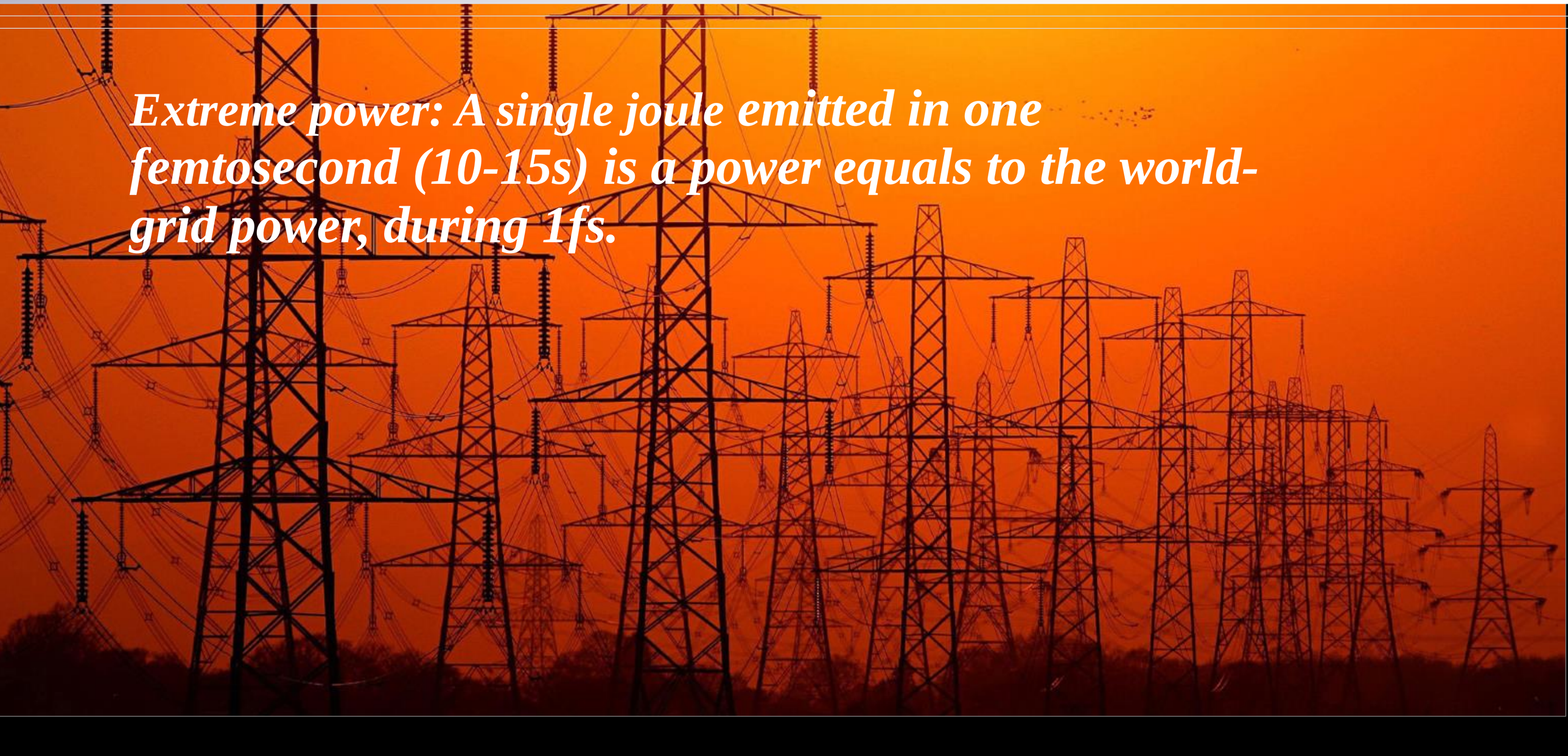


Duration fs

1fs is one millionth of a billionth of a second

A PASSION FOR EXTREME LIGHT

For the greatest benefit to human kind (Alfred Nobel)



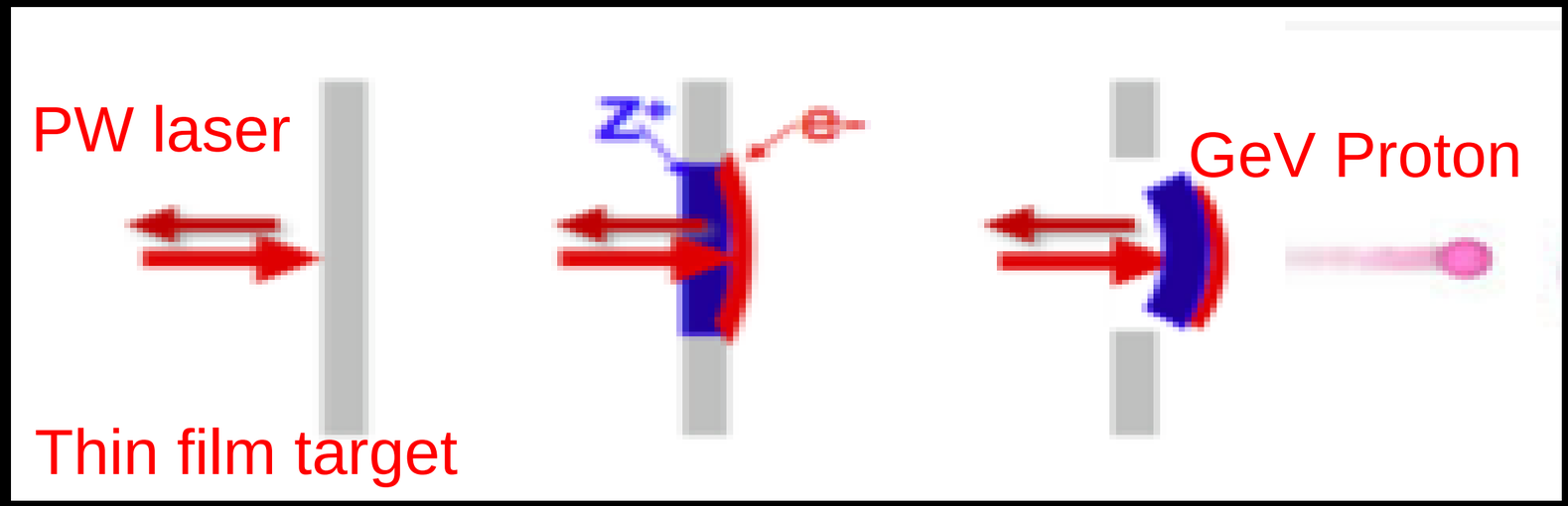
Extreme power: A single joule emitted in one femtosecond (10-15s) is a power equals to the world-grid power, during 1fs.

Why Extreme Light for Nuclear Energy?

Extreme light exhibits some impressive characteristics:

1. the largest peak power, 10^15W=PW
2. the largest temperature, milliard of C° center of sun
3. the largest pressure, Millions ET on a finger
4. largest acceleration. 10^25 g earth Gravity
5. Efficient generation of high energy particles

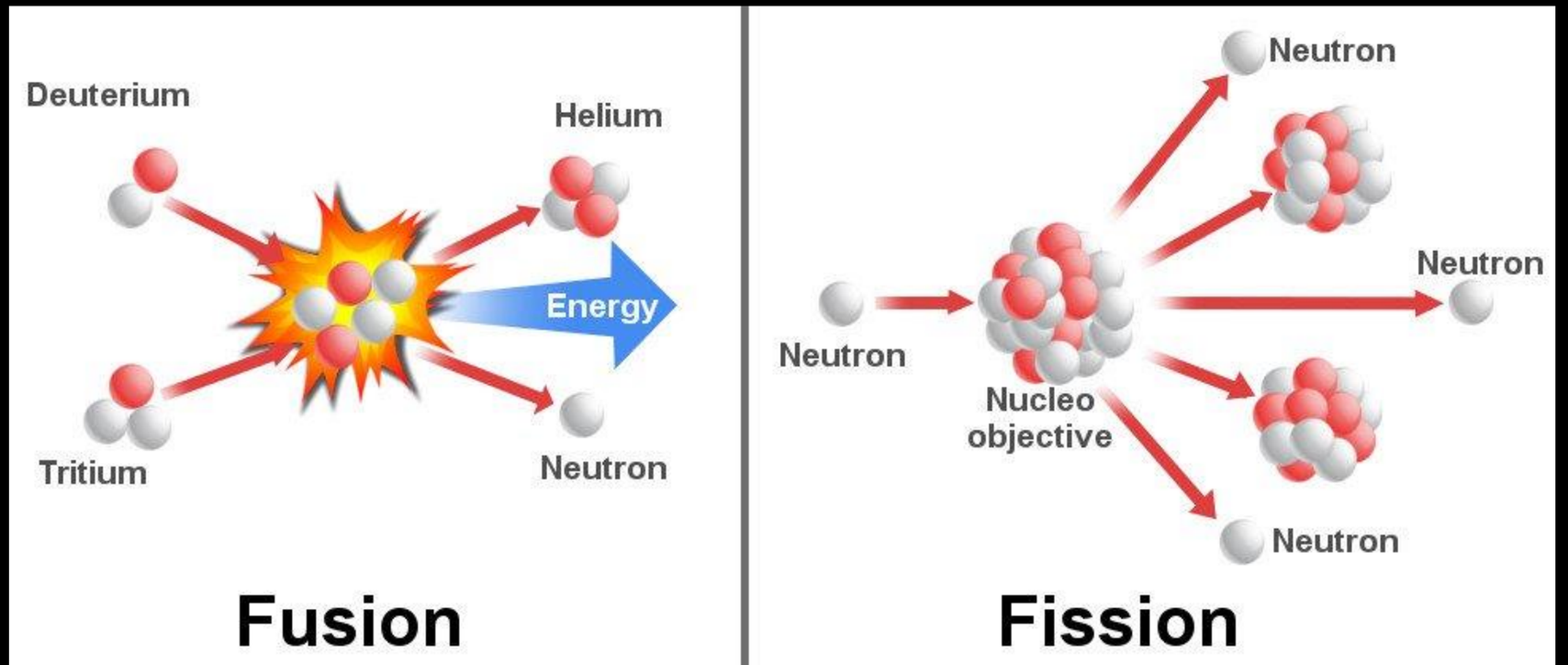
Extreme Light can Easily Produce High Energy Protons in the MeV-GeV Important for Nuclear Energy Applications



Two ways to produce nuclear energy: Fusion and Fission

*In **Fusion**, two light elements are fused by the enormous light ponderomotive pressure to create a heavier element releasing a large amount of energy. There is no nuclear waste.*

*In **Fission** large nuclei are fissionned by energetic neutron in a ADS reactor. Fission products and large amount of energy are released. The Thorium is preferable, the fission products are less and shorter-live than uranium's.*



Sharing our thoughts with the Pope on Extreme Light for Planet Stewardship (Anciclica Laudato si)

Together let's save our planet!!
Thank you!!