



**Gazi University (Turkey)**

**Vasyl Stefanyk Precarpathian National University (Ukraine)**

Duration: 12.02.2014 -30.06.2016.

Total budget: 239 000 Euro

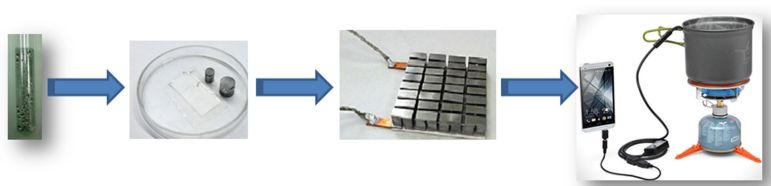
including: Ukraine (PNU) – 159 000 Euro

Turkey (GU) – 80 000 Euro

## THERMOELECTRIC MATERIALS AND DEVICES FOR ENERGY SAVING AND SECURITY INCREASE

**SPS(NUKR.SFPP 984536)**

**STRATEGIC AIM OF THE PROJECT** is development of reliable, environmentally friendly converters of thermal energy into useful electric one based on new composite materials with nano inclusions and preparation of complete cycle production "TE-material – TE-module – TE-generator (end device for special purpose)"



### PROBLEM SOLVING

#### Ecology

- Lowering the temperature of exhaust gases, i.e. reducing the contribution to global warming.
- Saving drinking water by reducing its use for traditional energy production.

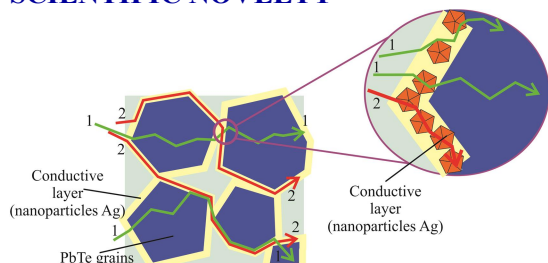
#### Energy saving

- Recuperation of thermal energy.
- Saving fuel for vehicles.
- Development, promotion and implementation of alternative and renewable energy.

#### Security

- Military security: fuel savings for heavy military equipment; life security of militaries (medicine); alternative sources of power.
- Reducing risks of technological accidents in power stations.

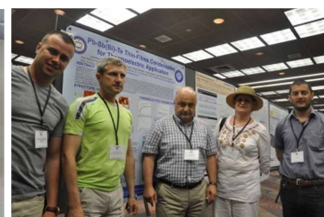
### SCIENTIFIC NOVELTY



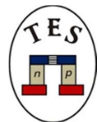
The technology of forming electrical conductivity nanochannels around micrograins of TE-material is developed. Decrease of phonon scattering and increase of the Seebeck coefficient are ensured for obtaining efficient composite TE-material by selecting the size of nanoparticles (~ 50 nm).

### KEY BENEFITS:

- cheap technology;
- availability of free heat source for TE;
- reliability, durability, accuracy.



### PROSPECTS FOR IMPLEMENTATION AND CONTACTS



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