"Fundamentally new thermoelectric materials based on Local Thermo-EMF".

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If the question of the measurability of the microworld was discussed by Niels Bohr and entered into the basis of quantum theory, the question of the measurability of local effects arose, as if from scratch, which served as a delay in recognizing the work of Ilya Prigogine on local thermodynamics. Thermodynamics, by its definition, was believed to be a purely macroscopic science and Prigogine's local entropy production [1] was attributed to the thing-in-itself - to intermediate, non-measurable effects (to Maxwell's demons). And if quantum generators - lasers gave a direct opportunity to "feel" the macroscopic quantum effect, then local thermo-emf in semiconductor polar structures also gave a direct opportunity to "feel" the macroscopic signal from local effects.

Traditional thermoelectric concepts, based on the macroscopic Seebeck / Peltier effects, despite the errors [2] discovered long ago and the experimental anomalies discovered long ago [3, 4], have been and remain a major obstacle to the use of local thermoelectric effects [5, 6]. On the basis of these, in principle, diffuse effects, the illusion of direct energy conversion was built. But also practice - the efficiency achieved approximately 10% many decades ago could not be further increased, and the theory (the cycle of my last thermoelectric works) shows that the diffuse Seebeck / Peltier effects are indirect, i.e. arise due to friction, as in the Van de Graaff generator.

Namely, local thermo-emf in polar semiconductor structures allow direct conversion of thermal energy into electrical energy [7-15]. On detectors of polar structures on the basis of silicon, heat detectors have been created that have an efficiency higher than 30% and are superior in sensitivity to photoelectric detectors

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