Є два типи залежностей:

|  |  |
| --- | --- |
|  | Поглинання УЗ зменшується у полімер-графеновому композиті |

|  |  |
| --- | --- |
|  | Теплопровідність збільшується у полімер-графеновому композиті |

**Можна спробувати:**

– **спрогнозувати теплопровідність** та/чи мезанічну добротність композиту. Приклали для теплопровідності (але без графену) – прикладені роботи 1,2.

– **обробити зібрані дані**. Приклад такого підходу – робота 3. У нашому випадку метод вимірювань:

Here, we used the two-probe measurement method to measure thermal conductivity [118]. Our automatic measuring system is schematically sketched in Figure 10. The sample was placed between two copper discs (heater and thermostat in Figure 10). An electric resistance served as a heater, and the power P released on it was determined with the electric current and voltage applied to the resistance. Additionally, the heat flux through the sample is Q = P/S, where S is the top and bottom surface area of the sample. A thermostat was used to keep the temperature of the top surface of the sample constant.



**Figure 10.** Schematics of the setup used for the thermal conductivity measurem ents. A and B are the

temperature sensors embedded into the sample. L is the distance between the sensors. Thermostat

is formed by mounting the top sample edge onto the cold head of the cryostat used (T-controlled

heat sink).

By maintaining the stationary heat flux, one can write the following relation to evaluate the thermal conductivity [119]

, (14)

where L is the distance between the sensors, and TA and TB are the temperatures measured by sensors A and B, respectively.

The samples were cylindrically shaped with a diameter of 12.5 mm and a height of 6 mm. Two holes with diameters of 1 mm were drilled in the samples from the top and bottom surfaces to the center, in which the temperature sensors were placed (A and B in Figure 10). After that, the holes were filled with epoxy resin for better thermal contact between the sample and the temperature sensors. BAP64-02 NXP diodes were used as temperature sensors. The diodes had rather small dimensions of 1.2 \_ 0.8 \_ 0.6 mm3, which made it possible to place them inside the sample without difficulty.