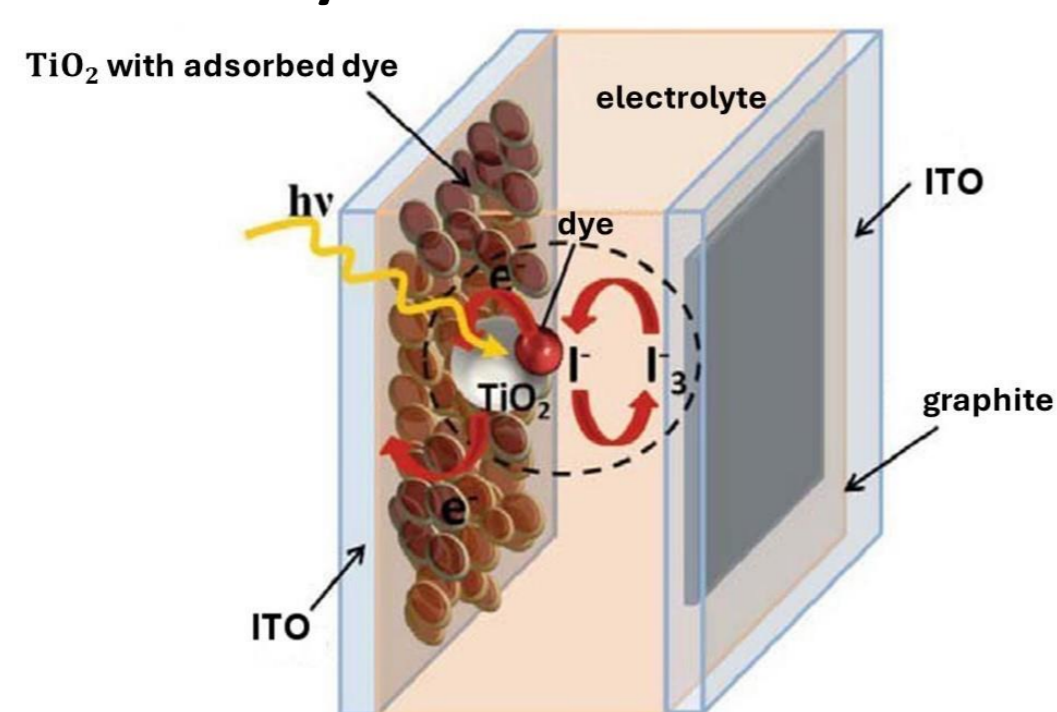


STEM Education for Sustainable Development

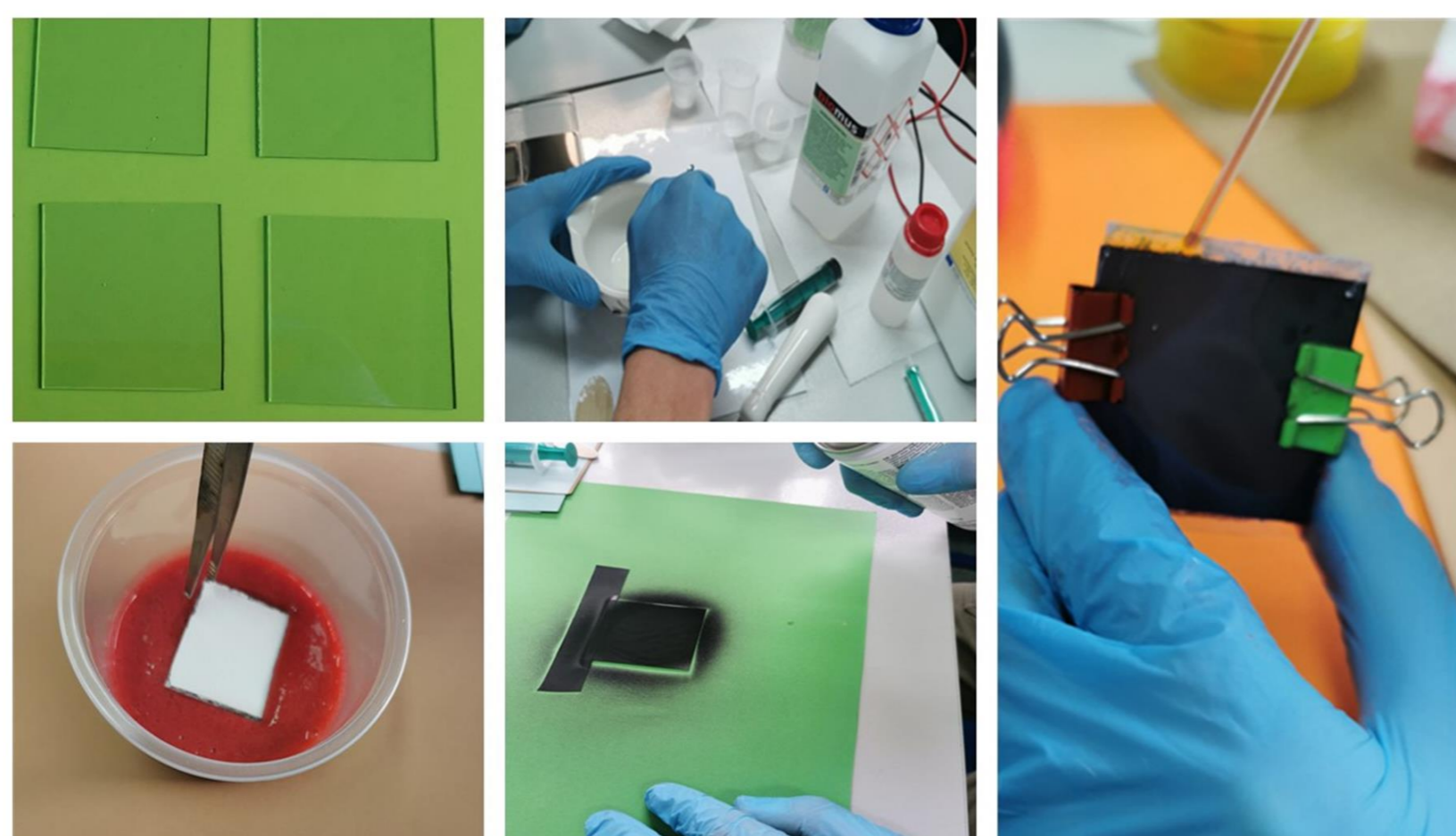
Dr Joanna Gryboś | John Paul II General Secondary School Complex | Pawłowice | Poland

Unconventional energy sources

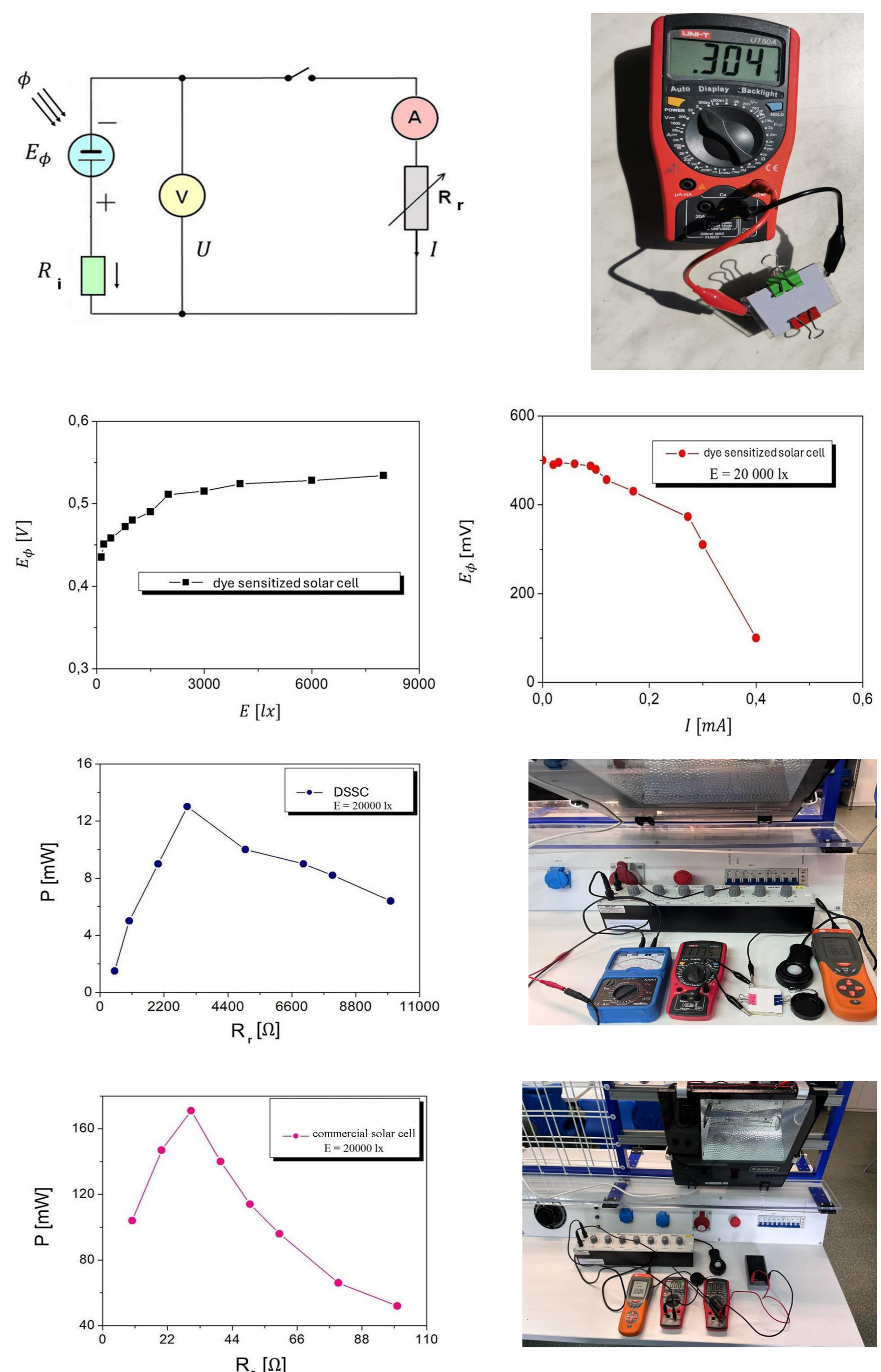
The main goal of the project was to create dye sensitized solar cells (DSSCs) and to compare them with standard commercial photovoltaic cells. The research was performed in school conditions. DSSCs utilize a photoelectrochemical process where a dye absorbs photons, generating electrons that flow through a semiconductor material to produce electricity.



Their construction incorporates several key materials like electrically conducting glasses (ITO), titanium dioxide (TiO₂), graphite, and natural dyes obtained from fruits and flowers like raspberries or rose petals.



The studies were based on measuring the electric parameters of DSSCs and commercial solar cells. The current – voltage characteristics and power – termination resistance dependence were determined.



It was possible to determine the optimal load parameters for standard photovoltaic cells and DSSCs at which maximum power is transferred to the receiver. The research showed that the parameters and properties of the measured systems depend on light intensity.