РОЗДІЛ 1
ПЕРЕДУМОВИ ТА ОСОБЛИВОСТІ ВИКОРИСТАННЯ АКТИВНОГО УЛЬТРАЗВУКА

1.1. Ефекти впливу ультразвука на мікроелектронні структури та матеріали

[1–6]:

In the literature, there are several models that describe the current–voltage $(I - V)$ characteristics of the solar cells (SCs). These models contain some parameters, which reflect the processes within the structures and are related to the main characteristics of the photovoltaic conversion. So single diode model with three parameters has been used to represent the SC static characteristic because of simplicity:

$$I = I_0 \left[\exp\left(-\frac{qV}{nkT} \right) - 1 \right] - I_{ph} \,, \tag{1.1}$$

were

СПИСОК ВИКОРИСТАНИХ ДЖЕРЕЛ

1. Ishaque, Kashif. Simple, fast and accurate two–diode model for photovoltaic modules / Kashif Ishaque, Zainal Salam, Hamed Taheri // Sol. Energy Mater. Sol. Cells. — 2011. — Feb. — Vol. 95, no. 2. — Pp. 586–594.

2. Breitenstein, O. Understanding the current-voltage characteristics of industrial crystalline silicon solar cells by considering inhomogeneous current distributions / O. Breitenstein // Opto–Electronics Review. — 2013. — Sep. — Vol. 21, no. 3. — Pp. 259–282.

3. Parameters identification of photovoltaic models using an improved JAYA optimization algorithm / Kunjie Yu, J.J. Liang, B.Y. Qu et al. // Energy Conversion and Management. — 2017. — Oct. — Vol. 150. — Pp. 742–753.

4. Olikh, O.Ya. Acoustically driven degradation in single crystalline silicon solar cell / O.Ya. Olikh // Superlattices Microstruct. — 2018. — May. — Vol. 117. — Pp. 173–188.

5. Nguyen, Hieu T. Temperature dependence of the radiative recombination coefficient in crystalline silicon from spectral photoluminescence / Hieu T. Nguyen, Simeon C. Baker-Finch, Daniel Macdonald // Appl. Phys. Lett. — 2014. — Mar. — Vol. 104, no. 11. — P. 112105.

6. Assessment and parameterisation of Coulomb–enhanced Auger recombination coefficients in lowly injected crystalline silicon / Pietro P. Altermatt, Jan Schmidt, Gernot Heiser, Armin G. Aberle // J. Appl. Phys. — 1997. — Nov. — Vol. 82, no. 10. — Pp. 4938–4944.