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Universal Tool for THz Radiation Analysis

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A unique platform for a Tera Hertz Transmission Line design for a superradiant FEL is present. The smart line is controlled by Artificial Intelligence (AI) intended for a wide tunable broad-spectrum THz radiation propagation. The main goal is to transfer radiation in the most efficient way. A 3D analysis and diagnostic of radiation space-frequency tool was developed. The AI changes the functions of the mirrors in such a way that all the reflected rays will reach the target. The rays represent the electromagnetic field similar to a light field. The representation of the field in terms of rays was carried out using the Wigner Distribution Function. It allows describing the dynamics of field evolution in future propagation. This in turn helps with the initial design of the transmission line and facilitates the use of a Ray Tracing method for future processing. Thus, working in the linear and non-linear regimes. The Ray Tracing method and code is greatly enhanced using parallel processing with graphics cards.

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Yes

Primary authors: GERASIMOV, Michael (Ariel University); Dr DYUNIN, Egor (Ariel University); Mr GERASIMOV, Jacob (Ariel University); FRIEDMAN, Aharon (Ariel University)

Presenter: GERASIMOV, Michael (Ariel University)

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