

V. P. Sirkeli, S. A. Vatavu, O. Yilmazoglu, S. Preu and H. L. Hartnagel, "Negative differential resistance in ZnO-based resonant tunneling diodes," *2019 44th International Conference on Infrared, Millimeter, and Terahertz Waves (IRMMW-THz)*, Paris, France, 2019, pp. 1-2, doi: 10.1109/IRMMW-THz.2019.8874570.

We present the results of a simulation study of resonant tunneling transport of non-polar m-plane ZnO/ZnMgO quantum structures with double and triple quantum barriers. It is found that in current density-voltage characteristics of such devices a region is present with negative differential resistance and this feature can be used for the generation of terahertz waves. The best performance at room temperature with output power of 912 μW @ 1 THz is derived for the non-polar m-plane ZnO/ZnMgO structures with triple quantum barriers and optimized design.