

Duality of research

Yoshiyasu Takefuji

R. G. Reeves et al. wrote an article entitled “Agricultural research, or a new bioweapon system?” (1). As far as we know, duality of physical phenomena can be simply observed. For example, Peltier devices have been used for cooling and heating. Providing the temperature difference between two sides of a Peltier device can generate electric power which is called Seebeck effect. LEDs (Light Emitting Diodes) can be used as sensors or cameras. In other words, PC screen or TV screen can be used as camera sensor. The physical phenomena or their components always have duality. The result of peaceful research can be used for developing dangerous weapons. Any technology for human-aid systems or weapons can be dual-used. All we need to do is to create regulations (laws) and rigorous checking systems against unethical technology uses (2).

References:

1. R. G. Reeves et al., Agricultural research, or a new bioweapon system?, Science 05 Oct 2018: Vol. 362, Issue 6410, pp. 35-37
2. George Lucas, The automated battlefield, Science 27 Apr 2018: Vol. 360, Issue 6387, pp. 386