

Solid-State Cooling Technology

Rodney Cox
CEO, Cool Chips plc
Gibraltar, UK

Cool Chips plc is developing Cool Chips™, a solid state cooling technology using quantum thermo-tunneling across a nanometer-scale gap. The technology is in the late development stage. Cooling across a gap using electrons as the working fluid was the idea of Jon Edelson, Cool Chips technical director, and developed into today's quantum thermo-tunneling technology under the direction of team leader Dr Avto Takhelidze. Industry demand for high-density solid-state cooling was strong back in the mid-1990s and is intense today. Cool Chips plc made a decision to eschew public finance and raise its research dollars privately to retain control and value. In doing so the company has established teams of scientists performing basic research geared to quantifiable commercial targets. Private research cannot be sustained if intellectual property cannot be protected, and having done successful research, it must be translated into economic benefits for key customers to have a chance of reaching the marketplace. Cool Chips plc has therefore developed a structure that gives researchers the freedom to investigate paths that may be outside their normal disciplines and sometimes apparently crazy. But all such programs are geared to the expected value in the marketplace of a successful outcome.