A simulated annealing algorithm for the optimization of multistage depressed collector efficiency

ABSTRACT
The microwave traveling wave tube amplifier (TWTA) is widely used as a high-power transmitting source for space and airborne communications. One critical factor in designing a TWTA is the overall efficiency. However, overall efficiency is highly dependent upon collector efficiency; so collector design is critical to the performance of a TWTA. Therefore, NASA Glenn Research Center has developed an optimization algorithm based on Simulated Annealing to quickly design highly efficient multi-stage depressed collectors (MDC).

INDEX TERMS
- **IEEE Terms**: Algorithm design and analysis, Design optimization, Electromagnetic heating, Electrons, High power amplifiers, Microwave amplifiers, NASA, Simulated annealing, Space exploration, Space heating
- **INSPEC**
  - Controlled Indexing: simulated annealing, travelling wave amplifiers
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