

## **Numerical Simulations of Particle Deposition in Metal Foam Heat Exchangers**

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Australia is a high-potential country for geothermal power with reserves currently estimated in the tens of millions of petajoules, enough to power the nation for at least 1000 years at current usage. However, these resources are mainly located in isolated arid regions where water is scarce. Therefore, wet cooling systems for geothermal plants in Australia are the least attractive solution and thus air-cooled heat exchangers are preferred. In order to increase the efficiency of such heat exchangers, metal foams have been used. One issue raised by this solution is the fouling caused by dust deposition. In this case, the heat transfer characteristics of the metal foam heat exchanger can dramatically deteriorate. This paper is a preliminary numerical investigation aimed to address this issue. 2D numerical simulations of a standard four-row tube bundle in cross-flow are performed with different particles distribution and particle deposition effects are investigated.

**Keywords:** CFD Modeling, Metal Foam Heat Exchangers, Particle Deposition