عنوان مقاله:

Effect of Thermal Radiation on Entropy Generation in Free Convection Inside Inclined Porous Enclosures

محل انتشار:

پانزدهمین کنگره ملی مهندسی شیمی ایران (سال: 1393)

تعداد صفحات اصل مقاله: 5

نویسندگان:

Iman Zahmatkesh - *Department of Mechanical Engineering, Mashhad Branch, Islamic Azad University, Mashhad, Iran*

Seyyed Ali Naghedifar - *Department of Mechanical Engineering, Mashhad Branch, Islamic Azad University, Mashhad, Iran*

خلاصه مقاله:

Effect of thermal radiation on entropy generation in free convection inside inclined porous enclosures is analyzed in this study. The free convective flow is simulated by solving numerically the mass, momentum, and energy conservation equations invoking the Darcy’s law and the Oberbeck-Boussinesq approximation. Moreover, the Rosseland diffusion approximation is utilized to describe the radiative heat flux in the energy equation. The generation of entropy is also calculated taking into account both heat transfer irreversibility and fluid friction irreversibility. As thermal boundary conditions of the enclosures, two opposite walls are kept at constant but different temperatures whereas the other two are assumed to be adiabatic. Thereafter, it is discussed how thermal radiation may affect the establishment of flow and thermal fields as well as entropy generation characteristics inside enclosures with different inclination angles

کلمات کلیدی:

Thermal radiation, Entropy generation, Porous medium, Enclosure, Free convection