

Special Issue

Free-Piston Engines: Recent Trends and Novel Designs

Message from the Guest Editor

For many years, researchers have presented the potential of free-piston engines to increase efficiency, decrease emissions, run on multifuel, and offer compact architectures. Unlike conventional rotary engines, linear engine piston motion is not prescribed by the crankshaft, and no crankcase is needed. Furthermore, the elimination of the canted piston connecting the rod to the crankshaft reduces piston ring and skirt friction losses. The linear engine compression ratio is changeable and variable. This can enable advanced combustion regimes such as homogeneous charge compression ignition HCCI over a broad operating space. HCCI operates on lean mixtures and lower temperatures than spark-based ignition and diesel engines. Linear engines also enable the direct activation of loads, such as compressors, pumps, or linear electrical generators. This Special Issue will be devoted to the latest research and development of free-piston engines, which are more widely applicable in this age of the solid-state manipulation of frequency and waveform. We seek submissions related to the design, development, analysis, and modeling of such free-piston engines.

Guest Editor

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Deadline for manuscript submissions

closed (31 May 2024)



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Message from the Editor-in-Chief

Machines is an international, peer reviewed journal on machinery and engineering. It publishes research articles, reviews and communications.

Our aim is to encourage scientists to publish their experimental and theoretical results in as much detail as possible. There is no restriction on the length of the papers. Full experimental and/or methodical details must be provided.

There are, in addition, unique features of this journal: Manuscripts regarding research proposals and research ideas will be particularly welcomed; Electronic files or software regarding the full details of the calculation and experimental procedure - if unable to be published in a normal way can be deposited as supplementary material.

Editor-in-Chief

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