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Two coupled Lévy queues with independent input. (English) Zbl 1296.60241

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Summary: We consider a pair of coupled queues driven by independent spectrally-positive Lévy processes. With respect to the bi-variate workload process this framework includes both the coupled processor model and the two-server fluid network with independent Lévy inputs. We identify the joint transform of the stationary workload distribution in terms of Wiener-Hopf factors corresponding to two auxiliary Lévy processes with explicit Laplace exponents. We reinterpret and extend the ideas of *J. W. Cohen* and *O. J. Boxma* [Boundary value problems in queueing system analysis. Amsterdam-New York-Oxford: North-Holland Publishing Company (1983; Zbl 0515.60092)] to provide a general and uniform result with a neat transform expression.

MSC:

60K25 Queueing theory (aspects of probability theory)

68M20 Performance evaluation, queueing, and scheduling in the context of computer systems

Cited in **3** Documents

Keywords:

coupled processor model; fluid network; Lévy input; Wiener-Hopf factorization

Full Text: [DOI](#) [arXiv](#)

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