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Semigroups of Partial Isometries

We present results on the spatial structure of semigroups of partial isometries on a Hilbert space. If these semigroups are also assumed to be selfadjoint, then they coincide precisely with faithful representations of abstract inverse semigroups. We obtain a generalized weighted-composition form for the members of such semigroups. In the presence of additional hypotheses, e.g., when the semigroup is finitely generated, we get a simpler, matricial form for it. This is joint work with Alexey Popov.