

Special solutions of discrete Painleve equations and quantum minimal surfaces

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We find an exact expression for the unique positive solution of a discrete Painleve equation that arises in the context of static membranes, and as an example of a quantum minimal surface considered by Arnalind, Hoppe and Kontsevich. It transpires that this is generated by a special combination of Backlund transformations for Painleve V, admitting a sequence of classical solutions which we are able to express explicitly using Wronskians of modified Bessel functions. Extensions to other quantum curves and higher order discrete Painleve equations will briefly be mentioned.