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Elliot Blackstone* (eblackstone@knights.ucf.edu), 4393 Andromeda Loop N, Orlando, FL 32816, and **Alexander Tovbis** and **Alexander Katsevich**. *Deift-Zhou method for the asymptotics of operators with an integrable kernel: transition from discrete to continuous spectrum*. Preliminary report.

We study the spectrum of an operator with an integrable kernel, related to the finite Hilbert transform on several disjoint intervals, where δ is the size of the minimal gap between the intervals. For any $\delta > 0$ the operator is a Hilbert-Schmidt operator and its eigenvalues and eigenfunctions can be asymptotically recovered from the leading order solution of the corresponding Riemann-Hilbert Problem. Our research is focused on the limit $\delta \rightarrow 0$, when the limiting operator has continuous spectrum. (Received January 17, 2017)