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Hakim Boumaza* (boumaza@math.univ-paris13.fr), 99, avenue J.B. Clément, 93430 Villetaneuse, France, and **Olivier Lafitte** (olafitte@iu.edu), Visiting Professor, Math Department, Rawles Hall, Indiana University, 831 East 3rd Street, Bloomington, IN 47405. *The band spectrum of the periodic Airy-Schrödinger operator on the real line.*

We introduce the periodic Airy-Schrödinger operator and we study its band spectrum. This is an example of an explicitly solvable model with a periodic potential which is not differentiable at its minima and maxima. We define a semiclassical regime in which the results are stated for a fixed value of the semiclassical parameter and are thus estimates instead of asymptotic results. We prove that there exists a sequence of explicit constants, which are zeroes of classical functions, giving upper bounds of the semiclassical parameter for which the spectral bands are in the semiclassical regime. We completely determine the behaviour of the edges of the first spectral band with respect to the semiclassical parameter. Then, we investigate the spectral bands and gaps situated in the range of the potential. We prove precise estimates on the widths of these spectral bands and these spectral gaps and we determine an upper bound on the integrated spectral density in this range. Finally, in the semiclassical regime, we get estimates of the edges of every spectral bands and thus of the widths of every spectral bands and spectral gaps. (Received January 27, 2017)