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**Human cortical responses to change in sound lateralization suggest  
non-topographical coding of interaural time differences**

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It is generally assumed that interaural time differences (ITDs) are coded by a parametric array of finely tuned ITD channels (topographic code). An alternative theory is that ITD is coded by a rate code, which involves only one channel in each hemisphere, broadly tuned to the contralateral hemispace. The aim of the current study was to investigate ITD coding in humans by using electroencephalography (EEG) with a continuous stimulation paradigm (CSP). In this paradigm, a test sound, with a given ITD, is immediately preceded by an appropriately matched control sound with a different ITD. At the transition from the test to the control sound, only neural elements that respond to the test but not the control ITD would be expected to be activated. Thus, the size of the transition response would be assumed to be determined by the degree of overlap between the neural responses to the control and test ITDs. The pattern of results was found to be inconsistent with the topographic model, and thus lend support to the hemispheric channel model.