# Abstracts

## Millimeter-wave dual mode radar for headway control in IVHS

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In intelligent vehicle and highway systems (IVHS), lateral and headway vehicle control is used to maintain stable driving. Headway control keeps the controlled vehicle an appropriate distance from vehicles directly ahead. Each vehicle needs to have an obstacle detection system installed to monitor distances to the preceding vehicle and its relative speed. In the future, headway control systems for consumer use must be cheap and capable of operating in all environmental conditions. To enable such equipment to be built, a dual mode millimeter-wave radar has been proposed. It would be able to operate in both radar mode, in which it would measure the distance to the leading vehicle, and in communication mode, in which it would exchange data with a vehicle ahead of it. By operating in two modes alternately, the dual mode radar can provide the headway control system with all the data needed to control the distances to the leading vehicles, their speeds, acceleration conditions, and the leading vehicle's steering angle and brake signal. The data can then be used for stable control of the vehicles. This paper describes the concept of the dual mode radar system and the results of the experiments undertaken.

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