370. Title:Terahertz lasers based on optically pumped four-level asymmetrical double quantum wells

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Abstract:A prototype of terahertz laser based on four-level asymmetric double GaAs/AlxGa1-xAs quantum well (QW) structures is presented. The prominent feature of this prototype is its close proximity of subband 0 and 1. An ensemble Monte Carlo method is adopted to analyze the electron population on each subband in this 4-level double QW. The close proximity of two bottom levels is found to have greatly improved the optically pumping efficiency. Also, an enhanced population inversion between subband 3 and 2 is obtained even at room temperature. Finally, the electric field Stark effect in QW is shown to be helpful for the close proximity of subband 0 and 1 in double QW.