

عنوان مقاله:

Nonlinear dynamic of a spiral bevel gear pair Nonlinear dynamic of a spiral bevel gear pair Nonlinear dynamic of a spiral bevel gear pair Nonlinear dynamic of a spiral bevel gear pair Nonlinear dynamic of a spiral bevel gear pair Nonlinear dynamic of a spiral bevel gear pair Nonlinear dynamic of a spiral bevel gear pair Nonlinear dynamic of a spiral bevel gear pair Nonlinear dynamic of a spiral bevel gear pair Nonlinear dynamic of a spiral bevel gear pair Nonlinear dynamic of a spiral bevel gear pair Nonlinear dynamic of a spiral bevel gear pair No

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خلاصه مقاله:

Bevel gears are one of the most important components of mechanical system to transmit motion between intersecting axes. For high-speed power transmission, spiral bevel gears are more useful instead of straight bevel gears. One of the main sources of vibration and noise of bevel gears, are oscillations of transmission error. Vibration Analysis of a gear is affected by various parameters which some of them cause the nonlinear vibrations. In this study, nonlinear dynamic analyses of spiral bevel gears discussed with the effect of variant backlash and time-varying mesh stiffness. A numerical integration based on fourth order Runge-Kutta computes the dynamic behavior of the system. In order to validate the numerical outputs of the dynamic solver, its outputs compared with experimental data of literatures. From the result of simulation, the backward and forward motions educed. In backward motion, relative frequency from 2.029 to 1.082 period-doubling are achieved. Moreover, in forward motion, the period-doubling bifurcation behavior .repeated in range of relative frequency between 1.966 and 2.033

کلمات کلیدی:

spiral bevel gear, backlash, static transmission error, nonlinear dynamic behavior

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