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Effect of viscous cross coupling between two immiscible fluids on elastic wave propagation and attenuation in unsaturated porous media

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Highlights

- Elastic-wave model incorporating the effect of viscous cross coupling is developed.
- Corresponding dispersion relations are precisely formulated.
- A factor is defined to quantify the relative importance of viscous cross coupling.
- The P3 wave is strongly sensitive to the presence of viscous cross coupling.
- Coupling strength may enhance variations in some wave attributes.

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