1. The STI and LTI indices of IEEE 118-bus system

Figure 1 presents the STI and LTI of 51 PQ buses in IEEE 118-bus system. The curves are obtained by three methods.

**STI by NR**: The index is obtained by Newton Raphson method. The terms *dV*/*dλ* and *dθ*/*dλ* are calculated by Jacobian matrix.

**STI by FD**: The index is obtained by Fast Decoupled method. The terms *dV*/*dλ* and *dθ*/*dλ* are calculated by B’ and B” matrix. The error is quite large compared with STI by NR.

**LTI by FD**: The index is obtained by the voltage/current phasors of twice fast decoupled power flow.



Figure 1. STI and LTI obtained by three methods.

1. The STI indices of Sichuan 2647-bus system

Figure 2 indicates that the STI obtained by FD has significant error when the system loading level is large. Therefore, it is not recommended for large-scale system voltage stability monitoring.



Figure 2. STI obtained by two methods.