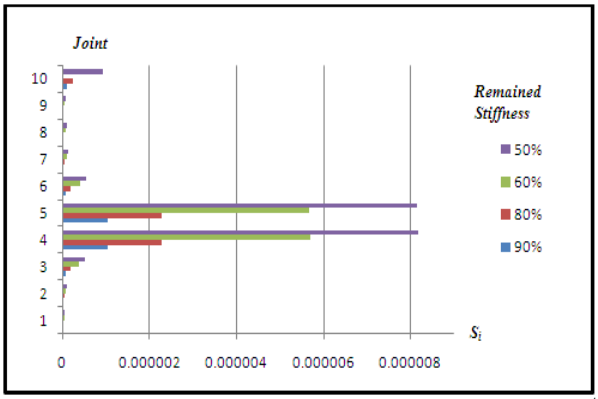

Fig 3. Sensitivity Test: Damage location at 5th element of column (excited frequency 10 radian/sec)

Then as different level of excited frequency is applied to structure, some results are obtained as shown in figure 4 and 5. They are:

1) Damage location is settled in same location for each level of excited frequency.
2) Curvature FRF difference magnitude differs as excited frequency closed to its natural frequency.

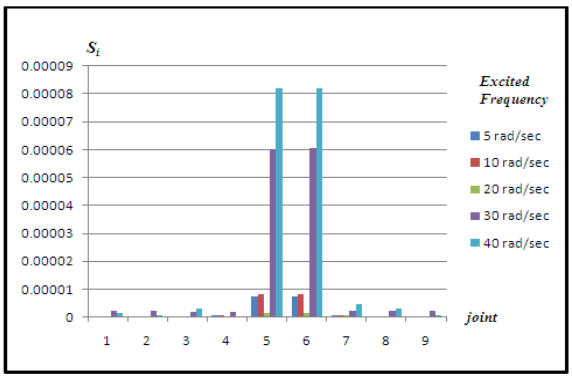

Fig 4.Sensitivity test to excited frequency at 5th element of beam (50% reduction of inertia)

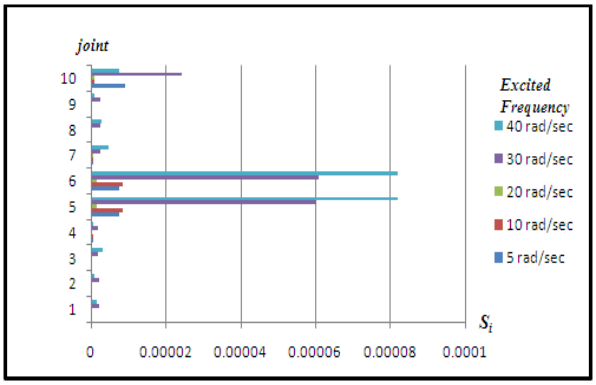

Fig 5.Sensitivity test to excited frequency at 5th element of column (50% reduction of inertia)

4. Conclusion

To conclude, both different level of damage and level of excited frequency are not sensitive to damage location since the location of damage is permanent after applying force. However, the magnitude of curvature FRF difference is sensitive to them which higher for high level of damage and/or applying frequency closed to its natural frequency. Thus, this method can be used for detecting damage, and its magnitude need to be established its generalization to meet the performance required.

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