



Research Organization: **University of Tehran**

Individual Research Member: **Ali Reza Taghvaei Kanee**

Short Description of the Organization:

I became interested in earthquake engineering after field observations during devastating Manjil earthquake (1990). I experienced that our preparedness against earthquakes are not sufficient. So, it became my first research interest to learn more about it and save people's life.

My research interests and experiences are as below:

### **1. Research experiences:**

#### 1.1. Nonstructural components assessment:

- 1.1.1. Height wise distribution of lateral drift in steel moment resisting frames;
- 1.1.2. Staircases' seismic effects on plastic hinge formation of steel moment resisting frames;
- 1.1.3. Distribution of peak inter-story drift for estimating non-structural elements vulnerability;
- 1.1.4. Vulnerability assessment of displacement sensitive non-structural components supported by moment resisting frames;
- 1.1.5. Elastic floor response spectra of nonlinear frame structures subjected to forward-directivity pulses of near-fault records;
- 1.1.6. Equipment seismic reliability assessment using stochastic, non-linear dynamic analysis of multiple supported secondary-systems;
- 1.1.7. Assessment of stair-structure's contribution in seismic performance of special moment resisting structures during small, moderate and strong seismic ground motions;

#### 1.2. Damage detection/finite element model updating:

- 1.2.1. Updated dynamic properties of an existing industrial facilities using ambient vibration tests;
- 1.2.2. Updating finite element models using asynchronous combination of spatial-mechanical optimization approach using low-amplitude test results;

#### 1.3. Structural engineering:

- 1.3.1. Application of dampers in high-rise buildings to enhance seismic performance;
- 1.3.2. Quantitative assessment of effective dynamics' parameters on seismic behavior of nuclear power plants;

### **2. Professional Experiences:**

- 2.1. Mehr Abad international airport entrance extension;
- 2.2. Conceptual, basic and detailed design of SHAH ALAM lighthouse;
- 2.3. Head of petrochemical complexes' seismic rehabilitation (pioneer project in oil industry);
- 2.4. ATLAS MALL commercial, recreational & official center (The most luxuries building in the country);