Kalyan M.Sc Thesis

The following MATLAB programs were used as a part of MSc.(Engg.) thesis submitted.

**Thesis Title:** *Development and Validation of Analytical Models for Diﬀuse Fluorescence Spectroscopy/Imaging in Regular Geometries.*

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Matlab Based Programs (Requires [NIRFAST](http://www.google.com/url?q=http%3A%2F%2Fwww.dartmouth.edu%2F%257Enir%2Fnirfast%2F&sa=D&sntz=1&usg=AFQjCNGy0Qj1Ase3wF2EPCnMRDNOteJ80A)):

1. Source file for Circular Geometry.
   * + - GetPhase.m
       - avg\_out\_values\_circle.m
       - fem\_amp\_phase\_Circle.m
       - load\_fem\_data\_Circle.m
       - src\_det\_dist\_Circle.m
       - analytical\_MTOF\_Circle.m
       - analytical\_data\_Circle.m
       - fdot\_Circle.m
   1. Source file for Cube Geometry.
      * + avg\_out\_values.m
        + load\_fem\_data\_Cube.m
        + fem\_amp\_phase\_Cube.m
        + analytical\_data\_Cube.m
        + src\_det\_dist\_Cube.m
        + fdot\_Cube.m
2. Source file for Semi-Infinite Geometry approximation using Slab.
   * + - fem\_amp\_phase\_Slab.m
       - avg\_out\_values.m
       - load\_fem\_data\_Slab.m
       - analytical\_data\_Slab.m
       - src\_det\_dist\_Slab.m
       - fdot\_Slab.m
       - analytical\_MTOF\_Slab.m
3. Source file for Cylindrical Geometry.
   * + - fem\_amp\_phase\_Cylinder.m
       - avg\_out\_values\_Cylinder.m
       - load\_fem\_data\_Cylinder.m
       - src\_det\_dist\_Cylinder.m
       - fdot\_Cylinder.m
       - analytical\_data\_Cylinder.m
   1. Source file for Spherical Geometry.
      * + - src\_det\_dist\_Sphere.m
          - fem\_amp\_phase\_Sphere.m
          - avg\_out\_values\_Sphere.m
          - load\_fem\_data\_Sphere.m
          - analytical\_MTOF\_Sphere.m
          - fdot\_Sphere.m
          - analytical\_data\_Sphere.m
   2. Source file for MTOF calculation.
      * + save\_trdata.m
        + load\_trdata.m
        + TR\_data.m
        + TPSF.m
        + plot\_mtof.m
        + fem\_MeanTimeOfFlight.m
        + Tau\_Vary.m
        + AllGeom\_MTOF.m
4. Source file for Patient Mesh.
   * + - fem\_amp\_phase\_pat.m
       - avg\_out\_values.m
       - load\_fem\_data\_pat.m
       - analytical\_data\_pat.m
       - uniform\_fl\_mesh.m
       - convert\_fl\_mesh.m
       - fdot\_pat.m
5. Files performing generic functions.
   * + - * run\_simulations.m
         * TOF\_plots.m
         * params.m
         * setup.m
         * meshes.m
         * Flux\_plots.m
         * MTOF\_plots.m
         * get\_brs\_rad.m
         * Cube\_PAT.m
6. Meshes to verify the fluorescence computation in NIRFAST.
   1. Directory Structure for source o be integrated in NIRFAST.