# Kalyan M.ScThesis

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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.

[Kalyan MSc Thesis](https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbnxzZXJjbWlnfGd4OjcyOTNmYjUwZGI0YTc2NWM)

Matlab Based Programs (Requires [NIRFAST](http://www.dartmouth.edu/~nir/nirfast/)):

1. Source file for Circular Geometry.<br/>

- GetPhase.m <br/>

- avg\_out\_values\_circle.m<br/>

- fem\_amp\_phase\_Circle.m<br/>

- load\_fem\_data\_Circle.m<br/>

- src\_det\_dist\_Circle.m<br/>

- analytical\_MTOF\_Circle.m<br/>

- analytical\_data\_Circle.m<br/>

- fdot\_Circle.m<br/>

\*1. Source file for Cube Geometry.<br/>

- avg\_out\_values.m<br/>

- load\_fem\_data\_Cube.m<br/>

- fem\_amp\_phase\_Cube.m<br/>

- analytical\_data\_Cube.m<br/>

- src\_det\_dist\_Cube.m<br/>

- fdot\_Cube.m<br/>

2. Source file for Semi-Infinite Geometry approximation using Slab.<br/>

- fem\_amp\_phase\_Slab.m<br/>

- avg\_out\_values.m<br/>

- load\_fem\_data\_Slab.m<br/>

- analytical\_data\_Slab.m<br/>

- src\_det\_dist\_Slab.m<br/>

- dot\_Slab.m<br/>

- analytical\_MTOF\_Slab.m<br/>

3. Source file for Cylindrical Geometry.<br/>

- fem\_amp\_phase\_Cylinder.<br/>

- avg\_out\_values\_Cylinder.m<br/>

- load\_fem\_data\_Cylinder.m<br/>

- src\_det\_dist\_Cylinder.m<br/>

- fdot\_Cylinder.m<br/>

- analytical\_data\_Cylinder.m<br/>

\*1. Source file for Spherical Geometry.<br/>

- src\_det\_dist\_Sphere.m<br/>

- fem\_amp\_phase\_Sphere.m<br/>

- avg\_out\_values\_Sphere.m<br/>

- load\_fem\_data\_Sphere.m<br/>

- analytical\_MTOF\_Sphere.m<br/>

- fdot\_Sphere.m<br/>

- analytical\_data\_Sphere.m<br/>

\*2. Source file for MTOF calculation.<br/>

- save\_trdata.m<br/>

- load\_trdata.m<br/>

- TR\_data.m<br/>

- TPSF.m<br/>

- plot\_mtof.m<br/>

- fem\_MeanTimeOfFlight.m<br/>

- Tau\_Vary.m<br/>

- AllGeom\_MTOF.m<br/>

4. Source file for Patient Mesh.<br/>

- fem\_amp\_phase\_pat.m<br/>

- avg\_out\_values.m<br/>

- load\_fem\_data\_pat.m<br/>

- analytical\_data\_pat.m<br/>

- uniform\_fl\_mesh.m<br/>

- convert\_fl\_mesh.m<br/>

- fdot\_pat.m<br/>

5. Files performing generic functions.<br/>

- run\_simulations.m<br/>

- TOF\_plots.m<br/>

- params.m<br/>

- setup.m<br/>

- meshes.m<br/>

- Flux\_plots.m<br/>

- MTOF\_plots.m<br/>

- get\_brs\_rad.m<br/>

- Cube\_PAT.m<br/>

6. Meshes to verify the fluorescence computation in NIRFAST.

1.Directory Structure for source o be integrated in NIRFAST.