

## APPLICATION INSTRUCTIONS "FOURIER ANALYSIS"

Tukey tappers (data windows) See: URL <http://www2.ee.ufpe.br/codec/tapers.html>

### 1 - To run the application <>data windows>>

- 1.1 Copy the following files with .m extension. (Matlab M files):  
**"ProjetoMMIC"**, **"Contact"** and **"About"** for the folder "work" of Matlab.
- 1.2 Copy the files with .fig extension. (*Matlab figure file*):  
**"ProjetoMMIC"**, **"Contact"** and **"About"** for the folder "work" of Matlab.

Remark.: usually the path is: C:\Program Files\Matlab\work or simply C:\matlab\work.

- 1.3 To run the application there are two options:
  - 1.3.1 Open the file "**ProjetoMMIC.m**" in Matlab editor and run it through the "**Run**" command;
  - 1.3.2 Open the file "**ProjetoMMIC.fig**" in **GUIDE** (Matlab GUI Builder); run it through the "**Run**" command.

### 2 - Using the application

- 2.1 The user must select the function to be analyzed on the top left of the application, the *tapper* to be applied to the coefficients of the Fourier series and the number of terms of the series approximation.
  - 2.2 After making the aforementioned selections, the user should click the "**Fourier**" button, located in the center the application.
  - 2.3 Three graphs will appear.
    - 2.3.1 In the upper right, the graph of the selected function;
    - 2.3.2 In the central part of the application will be plotted the approximation of the selected function by the classical Fourier series, with the number of terms informed by the user;
    - 2.3.3 At the bottom of the application will plot the approximation of the selected function by Fourier series with application of the selected *tapper* series coefficients and the number of terms entered by the user.
  - 2.4 While calculating the coefficients of the series => pointer will take the form of an hourglass.
  - 2.5 In the windows where the graphs are plotted the *zoom* tool is enabling.  
For using it, just select the desired region with the left mouse button. And, with right mouse button, you can return to normal view mode (via the "**Reset to Original View**").