





COMPARISON OF IMAGE RECONSTRUCTIONS FOR GAMMA TRANSMISSION COMPUTED TOMOGRAPHY SYSTEM BY USING MATLAB AND I-GORBIT SOFTWARE Khaing Nyunt Myaing, Myo Zaw Htut, Myo Min Thein khaing.nm@gmail.com **International Conference on Applications of Radiation Science and Technology** (ICARST 2017) Introduction 24 to 28 April 2017, Vienna, Austria

- Industrial computed tomography (ICT) system is a breakthrough in industrial radioisotope and radiation applications since they provide a range of cross-sectional views through materials, components and assemblies. The samples used in CT measurements were designed to simulate a cross section of various density materials with low to high density materials placed in a polymer pipe vessel. The projections used in this work were obtained by GORBIT CT system at the Radioisotope Technique Laboratory in Department of Atomic Energy, Yangon.
- **Experimental Set Up Working Interface of MATLAB** of CT System **Image reconstruction**





Reconstructed Images by MATLAB



graphical representation of the different density distributions that 164-28 6.4 **FBP** with Ramlak FBP with Sheeplogan 1.76.48 occurred in cross sections of the pipe Filtered backprojection with Cosine Filtered backprojection with Hann 100.01 vessel. Image reconstructions by 30 40 60 10 100 120 **Reconstructed Images** MATLAB based on Graphic User by i-GORBIT improved Interface GUI the **FBP** with Cosine **FBP** with Hamming 1.81E+00 1.16E-03 1.01E-03 1.60E-01 1.54E-03 1.64E+00 1.37E-01 1.37E-03 FBP resolution of by images 1.48E+00 8.48E-04 1.15E-01 1.20E-03 1.31E+00 9.27E-02 6.91E-04 1.03E-03 1.15E+00 7.03E-02 5.34E-04 8.56E-04 9.80E-01 4.80E-02 3.77E-04 6.85E-04 different filter with methods 2.57E-02 5.14E-04 2.20E-04 6.48E-01 3.32E-03 3.43E-04 6.27E-05 4.82E-01 -1.90E-02 -9.44E-05 1.71E-04 functions and interpolations. **FBP** method **ART** method **BP** method

The gamma ray CT provided a clear **BP** method i-GORBIT MATLAB

FBP with Hann ::: Cosine with linear interpolation **1113 EM** method