



UNIVERSITÉ
TOULOUSE III
PAUL SABATIER



M2TSI - SPACEMASTER

UE31 LABORATORY REPORT

Spectral Analysis and Sparse Representation

Authors:

Arthur Scharf
Andreas Wenzel

January 10, 2017

1 Introduction

2 Spectral analysis with Fourier Transform

2.1 Regular sampling case

2.2 Irregular sampling case

3 Sparse representation with greedy algorithm

3.1 Pre-whitening or Matching Pursuit (MP) algorithm

3.2 Orthogonal Matchin Pursuit (OMP) algorithm

3.3 Orthogonal Least Square (OLS)

4 Sparse representation with convex relaxation

A \mathbf{x}