

How to use the RM-Synthesis Program:

The program is started by

`rnsynthesis <parameterfile>`

parameterfile stands for a file which determines the parameters for controlling the RM Synthesis.

The parameters are determined by a key/value pair using the syntax:

`key=value # comment`

The parameters for the rnsynthesis are:

input	name of the file or directory, where the rmSynthesis gets the data from. Whether a file or a directory has to be given depends on the option rmCube, which determines whether a single line of sight should be processed or a whole imagecube. If an imagecube is processed, the procedure expects to get a data directory, otherwise it expects to get a single data file containing the line of sight.
output	Name of the file or directory to write the processed data into. A single file is used, if only one line of sight is processed.
rmCube	Flag which determines, whether the procedure has to process a single line of sight or a complete image cube 0 = single line of view 1 = complete image cube
casaQuery	Defines the name of the casa table where the data is inside. The procedure makes casa to search for an object of this name (default = map)
faraday_min	Lower boundary of faraday depths, for which the rm synthesis will be performed.
faraday_max	Upper boundary of faraday depths, for which the rm synthesis will be performed.
faraday_num	Number of values for the faradaydepth, for which the rm synthesis is performed.
method	Flag for choosing the method for the rm synthesis: <ol style="list-style-type: none">1. usual fourier rm synthesis2. Using a simple variant of the Wiener Filter3. Using the pseudoinverse of the Responsematrix4. Using Wafelett synthesis
nu_0	Value for the reference frequency, only needed for constructing the response matrix, which is needed for methods 2 and 3
alpha	Exponent for the powerlaw part of the response matrix. This parameter is only used for the methods 2 and 3
epsilon_0	Emission coefficient, only used for methods 2 and 3 for the response matrix.
useClean	clean method which is used 0 = no clean 1 = clean with point source in faraday depth 2,3 clean with gaussian source in faraday depth
file_format	File format for the reading of a single line of sight. Not used for the reading of a complete rm-cube. 0 = ascii 1 = fits
clean_weight	weight for each detected point source in faraday depth only relevant for useClean > 0
cleanIterations	maximal number of searched sources in faraday depth

<code>cleanRatio</code>	goal ration for the maximal absolute peak value to the mean absolute peak value to stop rm clean, only used for useClean > 0
<code>addResidual</code>	add the residual to clean result 1=yes 0=no
<code>wavelet_scale_min</code>	minimal scale level for wavelet analysis
<code>wavelet_scale_max</code>	maximal scale level for wavelet analysis
<code>wavelet_scale_step</code>	step size for the scale lever for wavelet analysis