POSSUM Report 8: Draft specification of interface between POSSUM WGs 2/5/8.

1 Introduction

This report is a draft specification of the steps to be carried out in order to produce the POSSUM Polarization Catalogue (PPC), and identifies who is responsible for delivering the algorithms to compute catalogue values. This process is handled by modules 2.6, 2.7, and 2.3 (as seen in Fig. 1, which outlines the flow of data through the POSSUM pipeline), though some entries will originate in other modules, and thus be outlined in other POSSUM reports. Note that this is a draft report and POSSUM Report 24 (Brown/Harvey-Smith) will outline the final plan for determining the catalogue output from the input RM spectra.

Table 1 lists the relevant PPC entries, along with details of where the quantities will be calculated, and who will develop the algorithms. Please refer to POSSUM Report #7 for a full description of the quantities, and the detailed data-flow through the pipeline.

2 Coordination of WGs 2, 5, & 8

The source-finding (WG 2) and RM-Synthesis (WG 8) working groups are primarily responsible for developing the algorithms to calculate the entries in the PPC. The first person listed in column d of Table 1 will lead the algorithm development and testing, in collaboration with the others listed. The chairs of WGs 2 (Stil) and 8 (Gaensler) are responsible for insuring the quality and appropriateness of the algorithms, while it is the responsibility of the WG 5 chair (Harvey-Smith) to coordinate the timely production of the PPC algorithms in general, and the writing of this document and POSSUM Reports #23 & #24 in particular.

3   Current Status

Work toward developing these algorithms is well underway, and some of the modules have already been implemented and tested. POSSUM Report #11, which outlines the calculation of upper limits and detection thresholds, is part of a paper to be submitted to a PASA special issue on source finding (George, Stil & Keller in prep). Results from this work will also be critical for computing the errors (e.g., δP and δf) for PPC entries, which will be outlined in POSSUM Report #24. An initial pipeline to produce simple rotation measures using simulated ASKAP/POSSUM data is already up and running (T. Robishaw, POSSUM Report #16), and work toward incorporating the complexity parameter (s, POSSUM Report #9) into this pipeline is underway. This will be incorporated into a MNRAS publication in the coming months (Brown et al.[1] in prep). These efforts, among others, insure that a working first-order pipeline will be available by November.

Catalogue Entry[a]	Module[b]	Report[c]	Person[d]
emu_id	EMU catalogue	NA	NA
emu_comp	EMU catalogue	NA	NA
$\mathcal{I}, \mathcal{Q}, \mathcal{U}, \mathcal{V}$	2.1	1	Robishaw
$RM_0, \delta RM_0$	2.6	24	Brown, Robishaw
$\theta_0, \delta\theta_0$	2.6	24	Brown, Robishaw
$P, \delta P$	2.6, 2.7	24	Brown, Robishaw, Stil
P^+	2.3	11	Still/George
$f, \delta f$	2.6, 2.7	24	Brown, Robishaw, Stil
f^+	2.3	11	Still/George
$S, \delta S$	2.6, 2.7	24	Brown, Robishaw, Stil
s	2.4	9	Brown
r_1	2.6	24	Brown, Robishaw, Stil
r_2	2.7	24	Brown, Robishaw, Stil

Table 1: a) Symbol for the PPC entry, described in detail in POSSUM Report #7; b) The module where the entry will be calculated (see Fig. 1); c) The POSSUM Report number where the algorithm will be described; d) The primary person(s) responsible for leading the development of the algorithm.

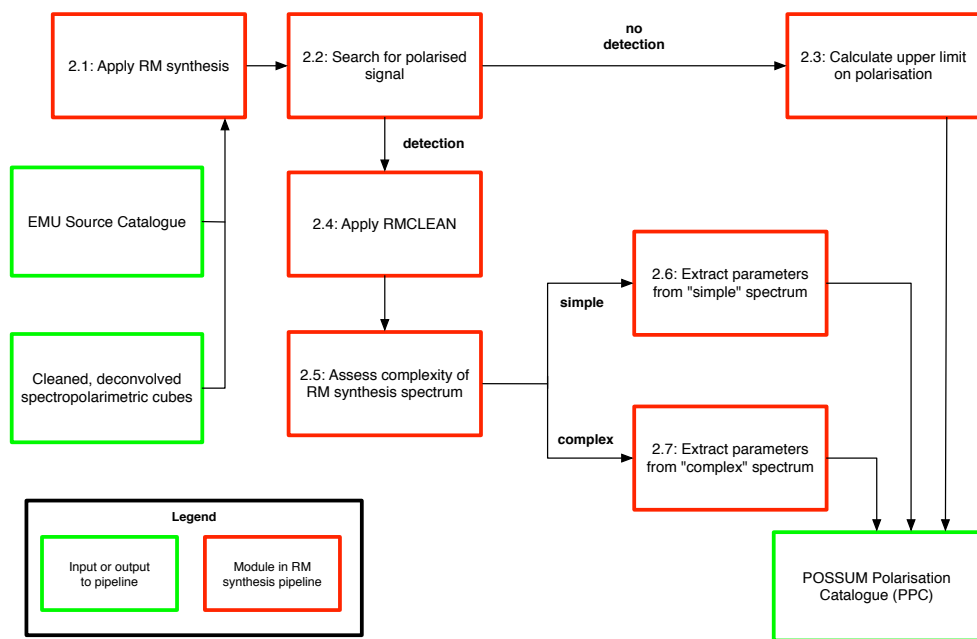[1]Brown, Gaensler, Robishaw & Rudnick in prep

Figure 1: A flowchart for the POSSUM RM pipeline, reproduced from POS-SUM Reports #5 & #7.