WP7: Timing study of gaseous detectors:

Tasks for the timing (M)RPC.

This is a slightly modified list of tasks. It includes the ones of table 8 (but not only) related to (M)RPC

-MRPC construction techniques: *This includes cassettes construction and sealing studies.* This also includes fishing lines vs spacers

-Readout electronics for precise timing (< 100 ps): This includes simple vs differential techniques study, pickup strips vs pads. This also includes also DAQ.

-**Timing vs number of gaps and their thickness** : This may also include simulation study

-**Timing vs new gases** : impact of different mixtures on the timing performance

-**Timing in high rate conditions:** this also includes developing and using new materials and study of detector aging

-**Development of single cell MRPC with very high rate capability (> 150 kHz/cm2)** : this intends to provide T0 for ToF-based PID system in fixed target experiments and colliders. It will be also used as a reference for high rate detector tests.

Possible additional tasks

-Development of a very thin single gap RPC with excellent time and spatial resolution

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Milestones and Deliverables will be a merger of a few tasks. For instance:

M1: Document describing a new technique to build MRPC

M2: Study of new gas mixtures impact on timing

D1: Large (1m x 1m) MRPC equipped with 1 cm X 1cm pickup pads and readout electronics reaching 100 ps

D2: Large (1m x. 1m) (M)RPC with high rate capability (> 10 kHz)

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A few remarks:

-At least 15 groups (Europe, Asia) showed interest to join this part of the WP which makes it feasible.

-the WP for timing (M)RPC is in an advanced stage following a few discussions with active actors and the first draft will be soon circulated to all who expressed interest in WP7.

-The list of tasks will be extended following a feedback from all who are interested in timing aspects as far as they take the responsibilities of the new subtasks.

-The list of partners will be updated to include those who commit themselves and their groups to the tasks.

-All the partners should be part of DRD1