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Target System for Collimated Muon Beam Production MATTEO BAUCE, INFN-Roma1, Italy, ROBERTO LI VOTI, GIAN MARIO CESARINI, GIANLUCA CAVOTO, Roma La Sapienza University and INFN-Roma1, Italy, FABIO ANULLI, FRANCESCO COLLAMATI, INFN-Roma1, Italy — Collimated beams for a Muon Collider can be produced with an intense positron beam stored in a large energy acceptance ring and directed to a multi-target system, producing muon pairs at threshold. To achieve significantly high muon beam intensities, each target of this system must be subject to a high power load and a large integrated Peak Energy Density Deposition (PEDD). Feasibility studies have been carried out investigating the properties of suitable targets: different low- Z materials, varying target thickness and configuration have been considered. A theoretical model has been developed to simulate the time evolution of the target heating, from energy deposition, to space-time temperature field calculation, and to thermal stress field derivation from temperature gradients. A targetry system with multiple elements has been simulated to evaluate the interference effect in each elements heat radiation. Results of the simulations for Be- and C-composites targets will be presented for a specific positron beam bunch pattern.

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