Below we analyze how the initial radiation affects the final shock structure. Four material levels are used: Xe (black), Be (blue), polyimide (green), and gold (red). In these simulations the code reads from the new HYADES/CRASH staggered mesh format (velocity is staggered). The initial condition from HYADES is taken at 1.1 (ns). We use multigroup, but not the electron physics. For the initialization with near zero radiation the shock structure changes noticeably, but the shock structure remains.

Initial radiation starts from HYADES multigroup data

Initial radiation starts from HYADES radiation temperature

Initial radiation is almost zero

Multigroup radiation and 3, 4, or 5 materials
Below we analyze the effect of the used materials on the final shock structure. The materials are Xe, Be, polyimide, and optionally gold and acrylic. The simulations are performed with an effective resolution of 2400 by 240 and one level of refinement. We use 30 logarithmically spaced groups ranging from 0.1 eV to 20 keV. The initial condition is taken from HYADES output at 1.3 (ns). While the details in the time evolution change, the structure in the primary shock remains robust.

3 material levels: Xe (black), Be (green), polyimide (red)

4 material levels: Xe (black), Be (blue), polyimide (green), gold (red)

5 material levels: Xe (black), Be (blue), polyimide (green), gold (yellow), acrylic (red)

Multigroup radiation, electron physics and 3, 4, or 5 materials
Here we analyze the effect of the used materials on the final shock structure by including the electron physics. The materials are Xe, Be, polyimide, and optionally gold and acrylic. The simulations are performed with an effective resolution of 2400 by 240 and one level of refinement. The multigroup uses 30 logarithmically spaced groups ranging from 0.1 eV to 20 keV. The initial condition is taken from HYADES at 1.3 (ns). The primary shock improves if we include acrylic.

3 material levels: Xe (black), Be (green), polyimide (red)

4 material levels: Xe (black), Be (blue), polyimide (green), gold (red)

5 material levels: Xe (black), Be (blue), polyimide (green), gold (yellow), acrylic (red)

Effect of initial radiation on the shock evolution
Below we analyze how the initial radiation affects the final shock structure. Four material levels are used: Xe (black), Be (blue), polyimide (green), and gold (red). In these simulations the code reads from the new HYADES/CRASH staggered mesh format (velocity is staggered). The initial condition from HYADES is taken at 1.1 (ns). We use multigroup, but not the electron physics. For the initialization with near zero radiation the shock structure changes noticeably, but the shock structure remains.

Initial radiation starts from HYADES multigroup data

Initial radiation starts from HYADES radiation temperature

Initial radiation is almost zero