

## **Absorption-scattering coupling for the infrared signature of an aluminized solid rocket motor**

Jean-Baptiste Pautrizel<sup>\*</sup>, Antoine Roblin<sup>\*</sup>, Patrice Perez<sup>\*</sup>, and Valérie Riolland<sup>\*</sup>

<sup>\*</sup>ONERA/DOA

Chemin de la Hunière, 91761 Palaiseau, FRANCE

**ABSTRACT.** This paper presents a method based on the separation of non-scattered and scattered radiance to compute the infrared signature at moderate spectral resolution of rocket exhaust plumes containing liquid or solid alumina particles. The method is first described and tested on simple configurations in order to evaluate both non-scattered and scattered contributions. It is then used on a plane parallel media with a vertical profile similar to a rocket plume. Spectrally averaged radiance computed by this approach is compared to a reference line by line method only applicable in simplified media.