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We have started a systematic investigation of the radiative properties of the elements of the sixth row of the periodic table. Using a combination of experimental radiative lifetimes obtained with the time-resolved laser-induced fluorescence (LIF) technique and of theoretical branching fractions (BF) calculated with a relativistic Hartree-Fock (HFR) approach, taking configuration interaction and core-polarization effects into account, transition probabilities have been deduced for a number of transitions of astrophysical interest. So far results have been obtained for the elements Ta [1], Re [2-3], Os [4], Ir [5], Tl [6] or Au [7] or their ions. The results obtained are stored in the database **DESIRE** (**D**atabas**E** for the **S**ixth **R**ow **E**lements), an extension of the database **DREAM** (**D**atabase on **R**are **E**Arths at **M**ons University), which will be progressively created on a web site of the University of Mons-Hainaut in Belgium (See e.g. [8]). In the present contribution, the procedures followed to obtain the new results but also on the difficulties associated with their determination will be discussed.

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