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CORRECTION

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Correction: Radiative and non-radiative decay rate of K_2SiF_6:Mn^{4+} phosphors

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Correction for 'Radiative and non-radiative decay rate of K_2SiF_6:Mn^{4+} phosphors' by Minseuk Kim *et al.*, *J. Mater. Chem. C*, 2015, **3**, 5484–5489.

There are several instances where the term wt% incorrectly appears instead of at%. These occur in the first two paragraphs of the experimental results and discussion section on page 5485 (corrected terms are indicated by bold text below):

"Two K_2SiF_6:Mn^{4+} phosphors were prepared with starting Mn^{4+} concentrations of 0.01 and 10 **at%**, which hereafter are referred to as samples A and B, respectively. However, Mn^{4+} concentration was not easily controlled during the precipitation process in the solution. Thus, the desired processing compositions, 0.01 and 10 **at%**, were not realized in the final samples. The ICP-MS analyses identified the actual Mn concentration to be 'nondetectable' for sample A and 4–5 wt% for sample B. The average Mn concentration obtained from the ICP measurements (4.695 wt% or 2.46 **at%**) will hereafter be referred to as the standard. Considering the sensitivity limit of 0.001 wt% for the ICP measurement of Mn ion, the actual Mn concentration should be lower than 0.001 wt% for sample A.

It was more accurate to estimate Mn^{4+} concentration based on the total concentration of Mn ions in various valence states, which was obtained from the ICP-MS measurement. XPS was used to accomplish this for sample B. Fig. 1 shows the Mn 2p core-level X-ray photoelectron spectrum together with fitted lines. The spectrum consists of $2p_{1/2}$ and $2p_{3/2}$ of Mn^{3+} and Mn^{4+}. The relative ratio between the different valence states (+3 and +4) of Mn ions for sample B was evaluated from the XPS data using a simple regression-fitting process, as shown in Fig. 1. It was obvious that Mn^{3+} ions were present along with Mn^{4+} ions in sample B. A rough estimate of the relative portion of Mn^{4+} was established to be 24% from the simple regression fitting of XPS spectra for both $2p_{1/2}$ and $2p_{3/2}$ peaks. The ICP-MS measurement of Mn content (2.46 **at%**) was reduced to 0.59 **at%** when considering only the activator (Mn^{4+}) concentration. This meant that only about 5% of the starting Mn content (10 **at%**) was incorporated as Mn^{4+} activators in the K_2SiF_6 host, and the other 95% might have been dissolved in the solution and wasted during the synthesis or is incorporated as Mn^{3+} in the K_2SiF_6 host. As seen in the XPS results, a considerable number of Mn^{3+} was present in the K_2SiF_6 host. In fact, the number of Mn^{3+} was much higher than the number of Mn^{4+} activators. Mn^{3+} has a $3d^4$ configuration consisting of one spin-quintet (^5D), five spintriplets (^3D, $^3F_{1,2}$, ^3G, ^3H), and eight spin-singlets (1S1,2, 1D1,2, 1F, 1G1,2, 1I). The crystal field splitting of these term symbols constitutes a much more complicated energy level, but there was no energy transition leading to visible light emission in any of the host materials at room temperature."

Also in the first sentence of text below eqn (1) on page 5487 (corrected term indicated by bold text below):

"The radiative decay time was assumed to be 13 ms, which was measured by Kasa and Adachi for a sufficiently diluted K_2SiF_6:Mn^{4+} (Mn < 1 **at%**) at low temperatures from 20 K up to about 100 K."

And in the text immediately after eqn (3) also on page 5487 (corrected terms indicated by bold text below):

"where V is the unit cell volume of the K_2SiF_6 host and N is the number of Si sites in the K_2SiF_6 unit cell. x_c was evaluated to be 1.26 **at%**, which was greater than that of sample B (0.59 **at%**)."

The Royal Society of Chemistry apologises for these errors and any consequent inconvenience to authors and readers.

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