Author Correction: Discrete interactions between a few interlayer excitons trapped at a MoSe₂–WSe₂ heterointerface

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The authors became aware of a numeric error in a parameter they used (dipolar interactions) in the model to interpret their experimental findings. As a result of this error, the following changes have been made to the original version of this Article:

In “Modelling interactions in multi-exciton complexes” under “Results and discussion”, the forth sentence of the first paragraph originally stated “For values of ℓ ~ 3–4 nm, reference to Fig. 3a shows that Δρ ~ 5–6.5 nm.” In the corrected version “Δρ ~ 5–6.5 nm” is replaced by “Δρ ~ 4.5–5.5 nm”.

The forth sentence after Equation (5) originally read “The experimentally observed blueshift of LIX₂ of (8.4 ± 0.6) meV is consistent with a confinement lengthscale in the range ℓ = 2.8–3.3 nm”. In the corrected version “ℓ = 2.8–3.3 nm” is replaced by “ℓ = 2.5–3.0 nm”.

The eighth sentence after Equation (5) originally read “Remarkably, … for a dielectric constant in the range ε ≈ 3, … and an effective confinement lengthscale of ℓ = 3 nm.” In the corrected version “ε ≈ 3” is replaced by “ε = 3” and “ℓ = 3 nm” is replaced by “ℓ ≲ 3 nm”.

The correct version of Fig. 3 is shown below after correcting the dipolar repulsion and exchange splitting energy (~20% differences).

Besides, “Supplementary Note 11: Calculations of the binding energy of the localized multi-IXs” of the Supplementary Information contained errors in the text and some Supplementary Equations because all dipolar interactions were counted twice.
The original Supplementary Equations (4–7) incorrectly read:

\[ U^{2X} = 2 \left( \frac{h^2}{2Mc^4} \right)^2 + 2 \frac{d^2}{4\pi e} (\Delta \rho)^3 \]  
(4)

\[ U^{3X} = 3 \left( \frac{h^2}{2Mc^4} \right)^2 \left( \frac{\Delta \rho}{\sqrt{3}} \right)^2 + 6 \frac{d^2}{4\pi e} (\Delta \rho)^3 \]  
(5)

\[ U^{4X} = 4 \left( \frac{h^2}{2Mc^4} \right)^2 \left( \frac{\Delta \rho}{\sqrt{2}} \right)^2 + 8 \frac{d^2}{4\pi e} (\Delta \rho)^3 + 4 \frac{d^2}{4\pi e} \left( \sqrt{2} \Delta \rho \right)^3 \]  
(6)

\[ U^{5X} = 5 \left( \frac{h^2}{2Mc^4} \right)^2 \left( \frac{\sqrt{50 + 10\sqrt{5}} \Delta \rho}{10} \right)^2 + 10 \frac{d^2}{4\pi e} (\Delta \rho)^3 \]  
+ 10 \frac{d^2}{4\pi e} \left( \frac{1}{2} (1 + \sqrt{5}) \Delta \rho \right)^3 \]  
(7)

The correct form of Supplementary Equations (4–7) is:

\[ U^{2X} = 2 \left( \frac{h^2}{2Mc^4} \right)^2 + 2 \frac{d^2}{4\pi e} (\Delta \rho)^3 \]  
(4)

\[ U^{3X} = 3 \left( \frac{h^2}{2Mc^4} \right)^2 \left( \frac{\Delta \rho}{\sqrt{3}} \right)^2 + 3 \frac{d^2}{4\pi e} (\Delta \rho)^3 \]  
(5)

\[ U^{4X} = 4 \left( \frac{h^2}{2Mc^4} \right)^2 \left( \frac{\Delta \rho}{\sqrt{2}} \right)^2 + 4 \frac{d^2}{4\pi e} (\Delta \rho)^3 + \frac{d^2}{4\pi e} \left( \sqrt{2} \Delta \rho \right)^3 \]  
(6)

\[ U^{5X} = 5 \left( \frac{h^2}{2Mc^4} \right)^2 \left( \frac{\sqrt{50 + 10\sqrt{5}} \Delta \rho}{10} \right)^2 + 5 \frac{d^2}{4\pi e} (\Delta \rho)^3 \]  
+ 5 \frac{d^2}{4\pi e} \left( \frac{1}{2} (1 + \sqrt{5}) \Delta \rho \right)^3 \]  
(7)

The original Supplementary Equations (8–11) incorrectly read:

\[ U^{0X} = 5 \frac{1}{\sqrt{215}} E \approx 1.125 \bar{E} \]  
(8)

\[ U^{0X} = 5 \frac{1.182}{6} \bar{E} \approx 2.648 \bar{E} \]  
(9)

\[ U^{4X} = 5 \left( \frac{1.4}{1.3} \right)^{3/5} \bar{E} \approx 4.806 \bar{E} \]  
(10)

\[ U^{5X} \approx 7.648 \bar{E} \]  
(11)

The correct form of Supplementary Equations (8–11) is:

\[ U^{0X} = 5 \frac{1}{\sqrt{215}} E \approx 0.853 \bar{E} \]  
(8)

\[ U^{0X} = 5 \frac{1.182}{6} \bar{E} \approx 2.007 \bar{E} \]  
(9)

\[ U^{4X} = 5 \left( \frac{1.4}{1.3} \right)^{3/5} \bar{E} \approx 3.642 \bar{E} \]  
(10)

\[ U^{5X} \approx 5.796 \bar{E} \]  
(11)

The original Supplementary Equations (12–15) incorrectly read:

\[ E^{2X} \approx E^X + 1.125 \bar{E} \]  
(12)

\[ E^{3X} \approx E^X + 1.523 \bar{E} \]  
(13)

\[ E^{4X} \approx E^X + 2.158 \bar{E} \]  
(14)

\[ E^{5X} \approx E^X + 2.842 \bar{E} \]  
(15)

The correct form of Supplementary Equations (12–15) is:

\[ E^{2X} \approx E^X + 0.853 \bar{E} \]  
(12)

\[ E^{3X} \approx E^X + 1.154 \bar{E} \]  
(13)

\[ E^{4X} \approx E^X + 1.635 \bar{E} \]  
(14)

\[ E^{5X} \approx E^X + 2.154 \bar{E} \]  
(15)

The third sentence after Supplementary Equation (21) originally read “For example, arranging three excitons in a line would result in \( U^{0X}_{\text{line}} \approx 3.496 \bar{E} > U^{0X} \)”, a quadexciton with three excitons on a triangle and the fourth one in the center would give \( U^{AX}_{\text{triangle}} \approx 5.493 \bar{E} > U^{AX} \) and a quintexciton consisting of four excitons on a square surrounding the fifth in the trap center would have \( U^{AX}_{\text{square}} \approx 7.845 \bar{E} > U^{AX} \).” In the corrected version “3.496 \( \bar{E} \)” is replaced by “2.650 \( \bar{E} \)”, “5.493 \( \bar{E} \)” is replaced by “4.163 \( \bar{E} \)” and “7.845 \( \bar{E} \)” is replaced by “5.945 \( \bar{E} \)”.

The HTML has been updated to include a corrected version of the Supplementary Information.

**ADDITIONAL INFORMATION**

**Supplementary information** The online version contains supplementary material available at https://doi.org/10.1038/s41699-021-00256-7.