

















Fig. 4. Decay probability for an isotropically (a) and perpendicularly (b) oriented dipole as a function of the distance of the dipole to the GST thin film. The wavelength is 600 nm and the thickness of the layer is 25 nm. The curves represent the three different decay channels.

#### 4. Conclusion

In conclusion, we have investigated the emission of photoexcited dye molecules in the vicinity of strongly absorbing thin films of chalcogenide (GST) glass. The excited molecules have a large probability (a maximum of 12% and 35% for randomly and perpendicularly oriented dipoles, respectively) of decaying transferring its energy to long-range guided modes (LRGMs). These modes are supported by the thin layer, in spite of the very large absorption of GST. Our demonstration of near-field coupling and energy transfer from dye molecules to guided modes in layers of strongly absorbing dielectrics constitutes the first step towards the compensation of losses in these modes.

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