

## CORRESPONDENCE

345 nm cut-off filter between the excitation monochromator and the sample, eliminates peaks of 300 and 600 nm. Using a proper filter before the sample is strongly advised.

I. De, D., Bagchi, P. and Bhattacharyya, D.,  
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### Response:

We learn through quantum uncertainty that a system confined in a finite space is described by an appropriate Fourier sum in the momentum and hence the wavelength space. To appreciate this fact for electromagnetic waves, one needs to go

into the quantized version of the theory, i.e. quantum electrodynamics leading to the photon description of the electromagnetic wave. Localization of a system in space leads to uncertainty in the corresponding momentum values, which in turn indicates multiple values for the wavelength in the dual wave picture through the well-known de Broglie relation.

The overtones and undertones as derived from Bragg's law of the spectrofluorimeter monochromator functioning are certainly an accompanying phenomenon in this case. However, in our experimental conditions using dilute solutions of soluble protein, no significant scattering corresponding to  $2\lambda/3$ ,  $4\lambda/5$ ,  $3\lambda/2$ , etc. could be detected. Even with a scatter solution (a suspension of MgO in water as shown in Figure 1 above), scattering at these wavelengths is abysmally low. It shows that even with relatively large slit width of 7.5/7.5 nm, the scattering intensities are below 0.8 AU. Actual values are probably much lower and have not

been mentioned. We did not include the monochromator function in our text because all the scattering and fluorescence as observed in protein solution experiments could be adequately explained from simple harmonics present in the monochromatic light. Probably it would have been better to mention the monochromator-related phenomenon irrespective of its detection. However, the reason mentioned for generation of overtones and undertones in our correspondence that is supported by experimental evidence, stands to be correct.

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## Warning bells in Ansupa Lake, Orissa

Ansupa Lake, one of the two freshwater lakes found in Orissa, is vanishing slowly. Another freshwater lake, i.e. named Saro, in Puri District, has already been wiped out from the wetland maps of Orissa due to anthropogenic pressure. The Ansupa Lake is situated on the lap of Saranda and Bishnupur hills, Cuttack District and is fringed by mango orchards. This pictorial lake has assumed international importance, as it is home to several migratory as well as domiciled birds. According to the inland wetlands of India report, there were 11,860 individuals from 42 bird species<sup>1</sup>. The Ansupa Lake, which makes ecological balance of flood waters from River Mahanadi, is gradually disappearing due to a host of man-made factors. A recent study on this wetland using Indian Remote Sensing (IRS) satellite P6 (Resourcesat-1) has indicated that about 30% of the total 317 ha lake area has been completely occupied for agriculture, while nearly 12% is infested by aquatic weeds<sup>2</sup>. Heavy exploitation of vegetation from the nearby hills accompanied with siltation, increased growth of water hyacinth (*Eichhornia crassipes*), and algae are turning the lake into a swamp.

There was a narrow stretch of clear water in the lake, as seen in the satellite images of 8 January 2004. Reclamation of land and change in land-use pattern are the most serious problems. During our field visit in September 2006, we found that many parts of the lake were encroached for agriculture and traditional fishing purposes. Comparing the satellite data with Landsat Multi Spectral Scanner (MSS) taken in 1973, clearly indicates a significant loss of the lake area. Weeds like elephant grass (*Pennisetum purpureum*) and water hyacinth cover the rest of the area and reclamation of the lake is going on, unhindered. If this type of human-induced degradation of the Ansupa Lake is left unchecked, the pristine natural freshwater body would permanently disappear, sooner than later.

The Ansupa Lake can now be declared a Community Reserve according to the amendment made in the Wildlife Protection Act (1972) in 2003, whereby the wetlands will have all the privileges of a Wildlife Sanctuary or a National Park, and also the additional advantage of local community participation, as it will be obligatory/statutory for the Government

to set up a 'participatory management' involving the local community. Declaring Ansupa a Community Reserve will not only protect the birds, but also save the only freshwater wetland in Orissa from further encroachment.

1. Vijayan, V. S., Prasad, S. N., Vijayan, L. and Muralidharan, S., Inland wetlands of India – Conservation priorities, SACON, Coimbatore, 2004.
2. Pattanaik, C. and Reddy, C. S., *Natl. Acad. Sci. Lett.*, 2007, **30**, 161–164.

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