ion than, but do not differ significantly from, the conventional data results. All parameters are consistent with expectations based on neutron powder diffraction results (Kasper & Waterstrat, Acta Cryst. (1956), 9, 199; Algie & Hall, Acta Cryst. (1966), 20, 342).

Conventional data results. All parameters are consistent with expectations based on neutron powder diffraction results (Kasper & Waterstrat, Acta Cryst. (1956), 9, 199; Algie & Hall, Acta Cryst. (1966), 20, 342).

A new X-ray interferometric spectrometer has been constructed to exploit the properties of the radiation from the newly-commissioned SR. The instrument is arranged primarily for diffraction in the neighbourhood of an atomic absorption edge of one kind of atoms (e.g. iron or chromium) with the iron structure as the primary beam, and so the SSD need only be translated. In the event of it proving desirable to eliminate problems caused by the anomalous scattering, experiments with synchrotron radiation from the storage ring DESY have shown that these effects can be measured with an average precision of about 0.01 to 0.03 of the total scattering.

**Site** | **No. Fe** | **No. Kα** | **Coord.**  
--- | --- | --- | ---  
A(2a) | 3.04 | 1.6(1) | 1.80(3)  
B(4f) | 2.07 | 1.3(1) | 1.09(3)  
C(8f) | 4.14 | 3.0(2) | 3.05(7)  
D(8f) | 4.14 | 7.0(2) | 7.14(5)  
W(8f) | 4.14 | 2.2(2) | 2.48(5)  

Preliminary dispersion data. Experiments with synchrotron radiation from the storage ring DESY have shown that these effects can be measured with an average precision of about 0.001 to 0.01 of the total scattering.

15.4-03 THE CONFIGURATION OF THE FOUR IRON ATOMS IN DISSOLVED HUMAN HEMOGLOBIN AS STUDIED BY ANOMALOUS DISPERSION. By H.B. Sturhmann and H. Notbohm, EMBL-Outstation Hamburg, c/o DESY, Notke­strasse 85,2000 Hamburg 52, West-Germany; Medizinische Hochschule Lübeck, Inst.f.Medizinische Molekulare Biologie, Ratzeburger Allee160, 2400 Lübeck 1, West-Germany.

The anomalous dispersion of iron at its K-absorption edge in small angle scattering of an aqueous solution of hemoglobin has been used to establish the geometrical arrangement of the four iron atoms in this protein. The anomalous contributions are about 0.001 to 0.01 of the total scattering, experiments with synchrotron radiation from the storage ring DORIS have shown that these effects can be measured with an average precision of about 0.001 to 0.01 of the total scattering.

The anomalous scattering represents the convolution of the whole structure with the configuration of the four iron atoms of hemoglobin. The analysis in terms of multipoles suggests that centrosymmetric symmetry of both the subunit arrangement and the iron structure is a dominant feature. The mean distance between the iron atoms of 26Å as derived from this experiment compares well with those of crystallographic data.

**Site** | **No. Fe** | **No. Kα** | **Coord.**  
--- | --- | --- | ---  
A(2a) | 3.04 | 1.6(1) | 1.80(3)  
B(4f) | 2.07 | 1.3(1) | 1.09(3)  
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* Fixed by composition and other occupation parameters.