CORRECTIONS

W. Stocker, S. N. Magonov, H.-J. Cantow, J. C. Wittmann, and B. Lotz*: Contact Faces of Epitaxially Crystallized α- and γ-Phase Isotactic Polypropylene Observed by Atomic Force Microscopy. Volume 26, Number 22, October 25, 1993, pp 5915–5923.

Figures 1–10 were poorly reproduced in the original publication due to printing problems. These figures are reproduced below.

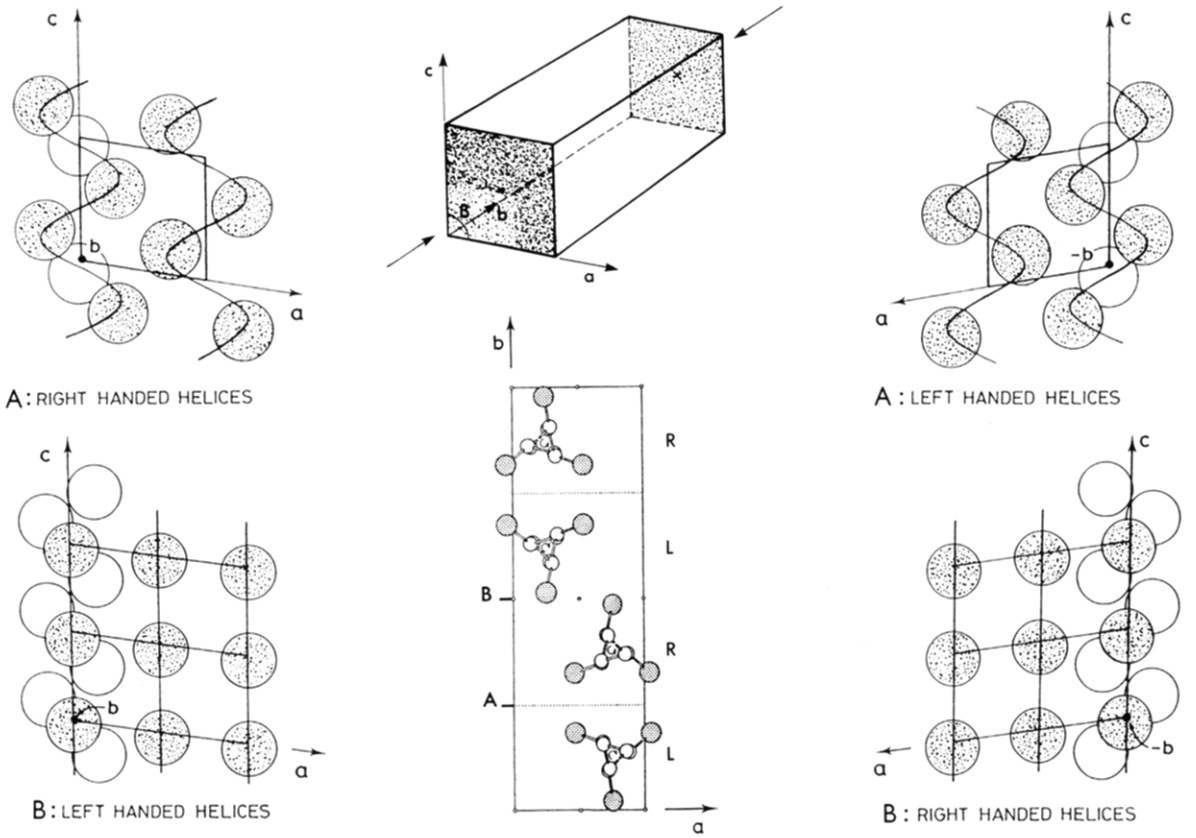

Figure 1. Crystal structure of α-iPP and (010) contact planes. Center bottom: Crystal structure seen in c-axis projection.[13] Note the alteration of right (R) and left (L) hands of helices along the b axis and different azimuthal setting of chains leading to two different contact faces, marked A and B. Contact faces A and B as seen along the $+b$- and $-b$-axis directions (cf. center top) are shown in the left and right of the figure, respectively. Exposed methyl groups are shaded and buried ones are unshaded in only one of the helices shown.

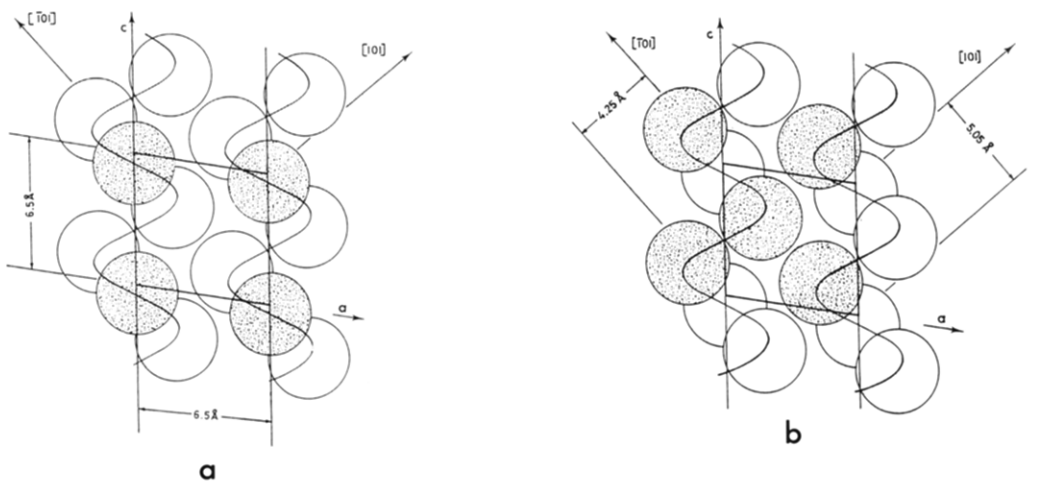

Figure 2. Large-scale view of the two possible contact faces B and A with indications of dimensions. In both figures, two helices of the contact plane are imaged. Note the striking difference in density of exposed methyl groups (shaded). The two patterns can be described as the "four" (a) and "five" (b) patterns of dice (simple and face centered, respectively).[7]

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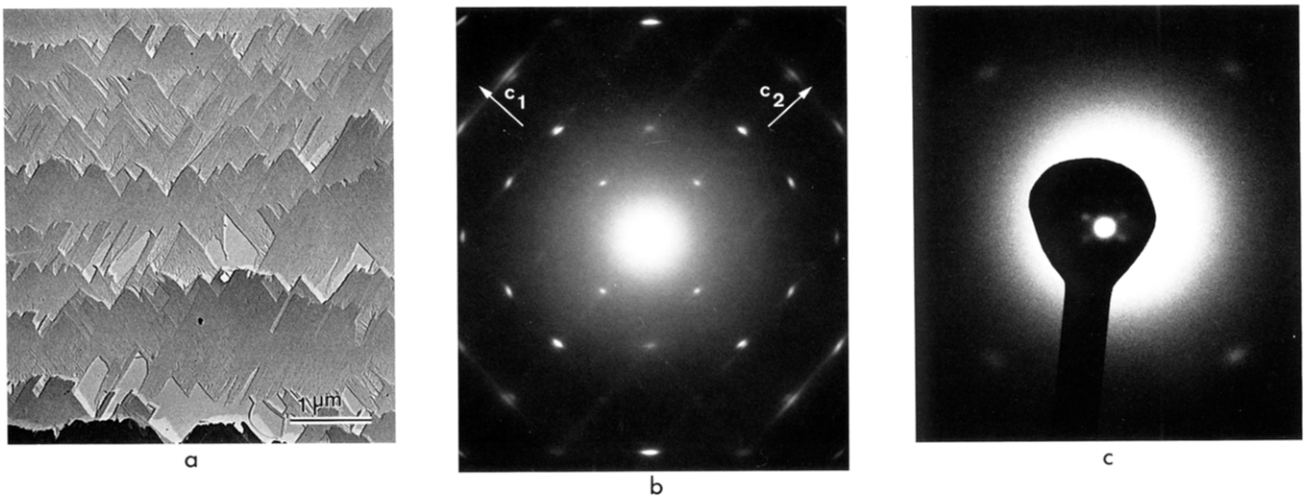


Figure 3. (a) Lamellar structure of the contact face of α-iPP with benzoic or nicotinic acid after dissolution of the substrate. The exposed contact face has been shadowed with Pt/C. Note the existence of two lamellar orientations, very reminiscent of the structure of iPP "quadrites"[18] formed on solution crystallization. (b) Selected-area electron diffraction (wide angle) of an area as in (a) in proper relative orientation. This pattern indicates two chain orientations at 80° (or 100°) to each other: the four inner 110 spots (6.4-Å^{-1} spacing) correspond to two equators; the unit cells are seen in *b*-axis projection. (c) Selected-area electron diffraction pattern (wide and low angle) of a film as in (a) but decorated with gold particles (gold decoration[23]). The wide-angle pattern is taken first while using a beam stop (four outer 110 spots corresponding to the inner ones of (b)). A second exposure (in the area of the photographic plate covered by the beam stop) is used to record the low-angle pattern of the lamellar structure. This second pattern is taken using a larger camera length: the wide- and low-angle patterns are not therefore on the same scale but are in proper relative orientation.

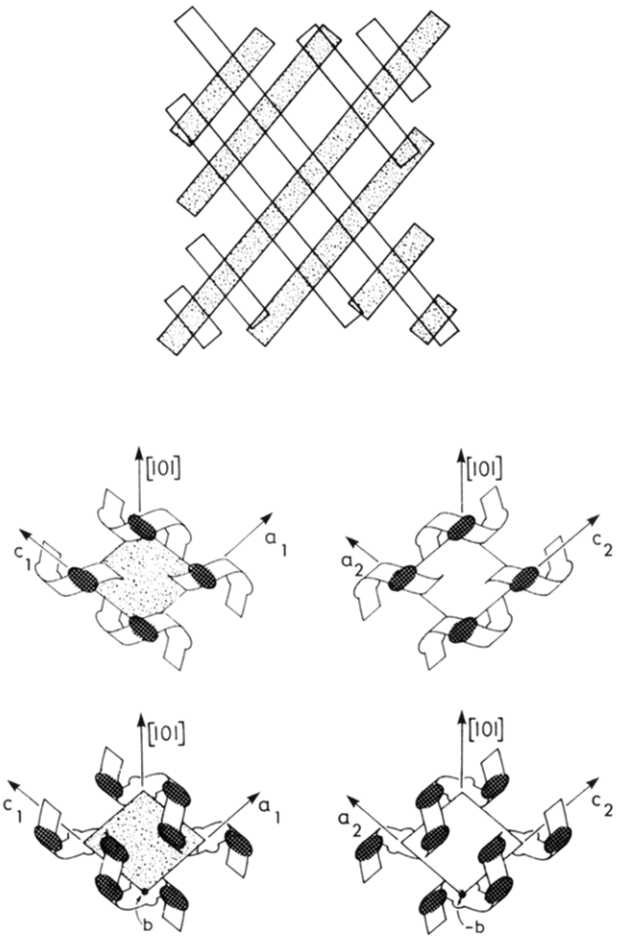
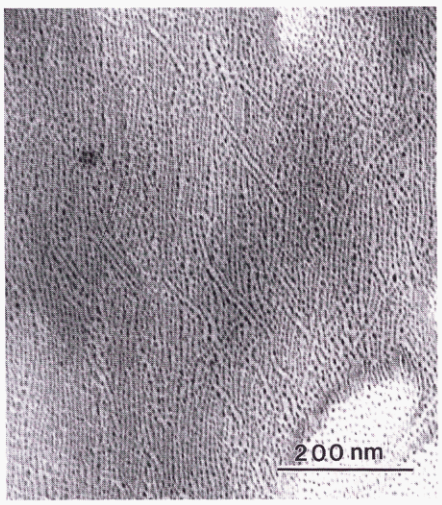
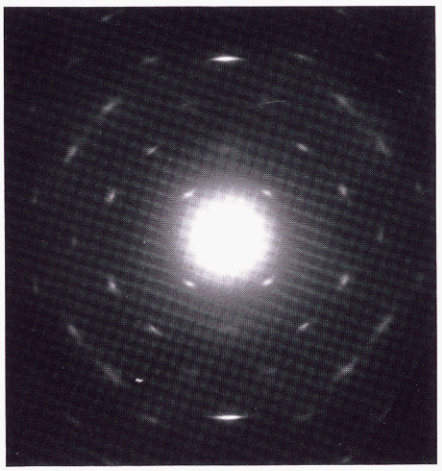


Figure 4. Schematic representation of the structure of epitaxially crystallized α-phase iPP with indication of hand of helices in the two sets of lamellae (shown as shaded and white).



a



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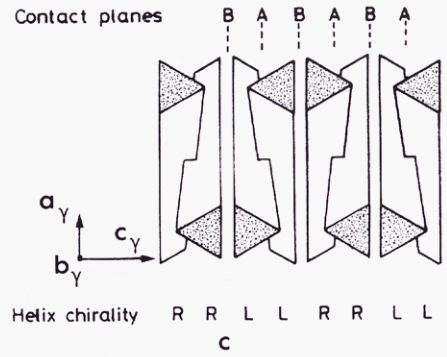

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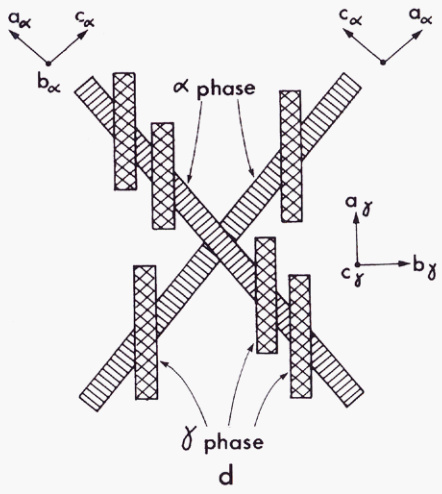

d

Figure 5. (a) Electron micrograph of an epitaxially crystallized film of iPP with mixed α and γ phases. Note the two orientations at 80° of the few α-phase lamellae and the unique orientation of γ-phase lamellae parallel to the [101] α-phase direction (vertical). (b) Electron diffraction pattern of a film as in (a). Note overall similarity of this pattern and that of pure α phase[20] (Figure 3b). The four inner reflections are 111_γ; a_γ vertical, b_γ horizontal. (c) Model of chain arrangement in γ-phase crystal structure as determined by Brückner and Meille,[20] seen along the b_γ axis (normal to lamellar surface). Note that chains are parallel and antichiral, and at 80° and isochiral, when contacting through the B and A faces, respectively. (d) Lamellar and chain axis orientations in the composite α- and γ-phase epitaxially crystallized film in (a). Note that the two chain orientations found in combination in γ-phase lamellae are parallel to those existing, separately, in the α-phase lamellae (from ref 6).

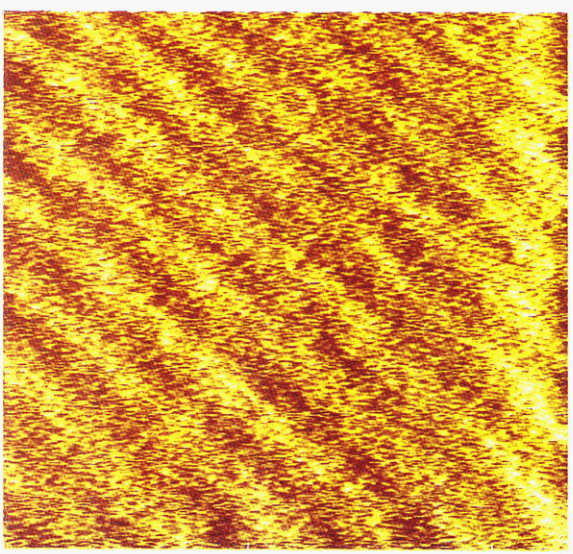

Figure 6. Low-resolution AFM picture of the lamellar structure in epitaxially crystallized α-phase iPP. The imaged area comprises only one of the two possible orientations of lamellae (displayed in Figure 3a).

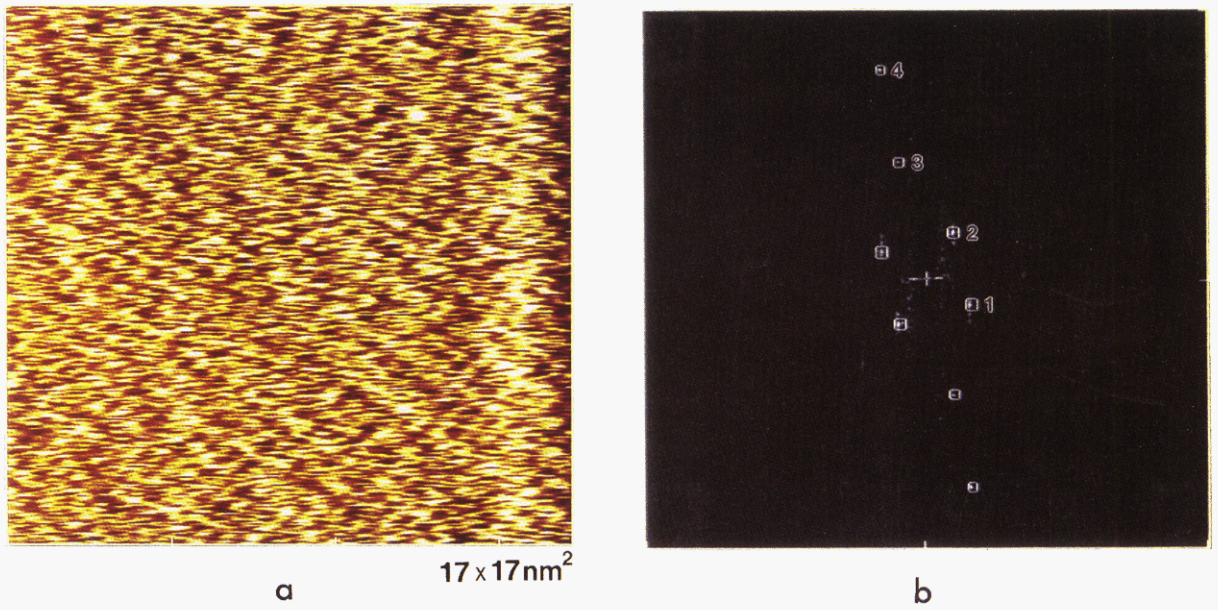

Figure 7. (a) Unfiltered AFM image of a 17 × 17 nm area selected in Figure 6a. (b) Fourier transform of (a) composed of four pairs of spots, marked 1–4. Note that the four central spots, although similar to those of Figure 3b, refer here to the *surface* structure of an area with a *single* chain orientation, whereas Figure 3b represents the first equatorial diffraction spots (110) for two *different* chain orientations.

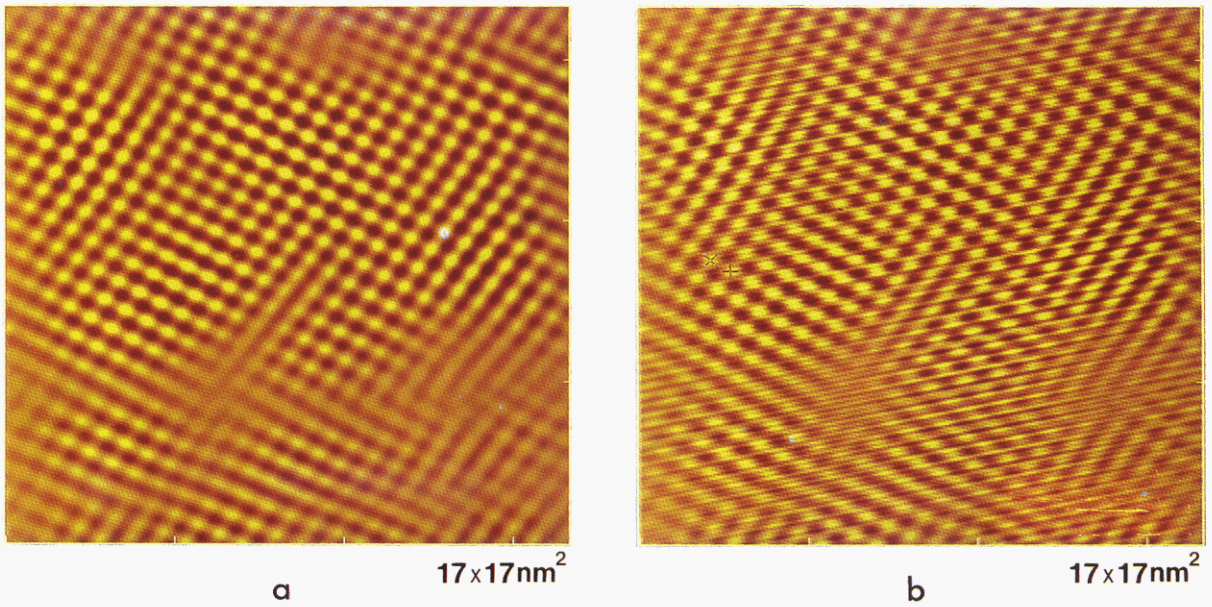

Figure 8. Fourier-filtered images of Figure 7a using diffraction spots marked (a) 1 and 2 and (b) 1–4 in Figure 7b.

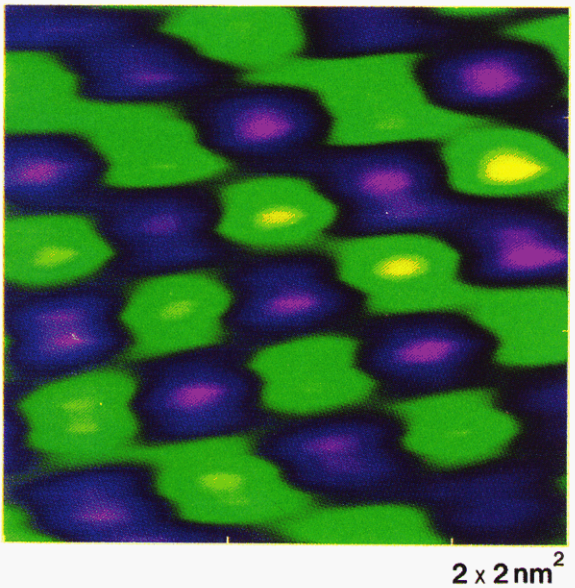

Figure 9. Enlarged Fourier-filtered image of Figure 7a using diffraction spots marked 1, 2, and 3 in Figure 7b. Note the simple, lozenge-type pattern and horizontal elongation of peaks corresponding to the methyl groups (darker areas).

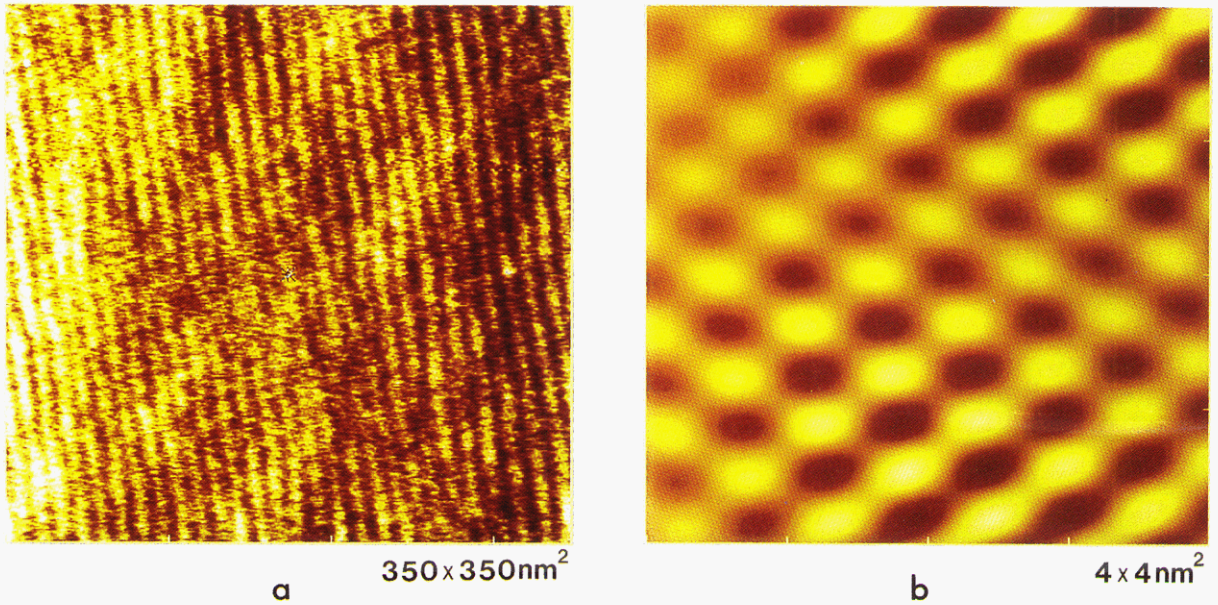

Figure 10. (a) Low-resolution image of the lamellar structure in γ-phase iPP films epitaxially crystallized on benzoic acid. (b) Fourier-filtered image of the methyl group pattern in an area as in (a) in proper relative orientation. Note the pattern of methyl groups similar to that of the α phase but the different orientation relative to the lamellae, which identifies the γ phase.