(task105, L = 12, 5000 samples)

(1) The  x- and y-axis of the phase diagram should be J3 and T= 1/beta, respectively, in the unit of J1.

(2) Notice that there are four phases and two tricritical/triple points in these data.

(3) It contains more data than needed, the x-axis can be cut at J3/J1 ~ 2, depending on visual balance.

J3/J1  beta\_c by susceptibility peak

D2-biaxial to D2h-biaxial transition (B-B\*)

0.00     infinite

0.10     5.6 +/- 0.2 (new data)

0.15     2 +/- 0.1     (new data)

0.2     1.72 +/- 0.02

0.25     1.58 +/- 0.02 (new data)

0.3     1.49 +/- 0.02

0.35     1.43 +/- 0.02 (new data)

0.4     1.38 +/- 0.02

0.45     1.34 +/- 0.02 (B-B\*-liquid 3-point) (new data)

D2h-biaxial to O(3) liquid transition (B\*-liquid)

0.0     1.36 +/- 0.02

0.1     1.36 +/- 0.02

0.2     1.36 +/- 0.02

0.3     1.34 +/- 0.02

0.4     1.32 +/- 0.02

0.45     1.34 +/- 0.02 (B-B\*-liquid 3-point) (new data)

D2-biaxial to O(3) liquid transition (B-liquid)

0.45     1.34 +/- 0.02 (B-B\*-liquid 3-point) (new data)

0.5 1.3 +/- 0.02

0.6     1.23 +/- 0.01

0.7     1.18 +/- 0.01

0.8     1.14 +/- 0.01

0.9     1.09 +/- 0.01

1.0     1.06

1.1     1.02 +/- 0.01

1.2     0.99 +/- 0.01

1.3     0.96

1.4     0.94

1.5     0.91

1.6     0.89

1.7     0.87 (B-U-liquid 3-point)

D2-biaxial to Dinfh-Uniaxial transition (B-U)

1.7     0.87 (B-U-liquid 3-point)

1.8     0.85

1.9     0.83

2.0     0.82

2.1     0.8

2.2     0.79

2.3     0.78

2.4     0.77

2.5     0.76

2.6     0.75

2.7     0.74

2.8     0.73

2.9     0.73

3.0     0.72

Dinfh-uniaxial to O(3) liquid transition (U-liquid)

1.7     0.87 (B-U-liquid 3-point)

1.8     0.84

1.9     0.8

2.0     0.76

2.1     0.74

2.2     0.71

2.3     0.69

2.4     0.66

2.5     0.64

2.6     0.62

2.7     0.6

2.8     0.58

2.9     0.56

3.0     0.54