priori unknown. A Gaussian-like exponential function

$$f_\mathrm{a}(\alpha) \propto \exp(-\frac{\alpha^2}{2\alpha_\mathrm{t}^2}) \tag{1}$$

was chosen, which was confirmed by high energy synchrotron x-ray diffraction measurements[23]. Since α is restricted to $[0, 90°]$, the density distribution function has to be renormalized numerically[22] and is formally not a true Gaussian distribution. This implies that α_t is no longer the standard deviation of the distribution or an average misalignment angle, which are restricted to angles below 90°, but only a parameter which characterizes the decrease of the density distribution function between 0 and 90° and, therefore, the degree of texture. α_t converges to zero in the limit of perfect texture and diverges in untextured materials (f_a becomes constant between 0 and 90° for $\alpha_\mathrm{t} \to \infty$, uniform distribution).

Only a few quantitative data about texture in MgB_2 tapes exist in the literature, varying between 20° and 30°[5,23], but the model is not restricted to this angular range. For $\alpha_\mathrm{t} \to 0$ and ∞, the results of the model merge the predictions of the anisotropic scaling approach[35] and the percolation model for untextured MgB_2[14], respectively.

For the calculation of the angular dependence of J_c, B_c2 and $B_{\rho=0}$, the density distribution function with respect to the direction of the applied magnetic field is needed, which was derived from the distribution function Equ. 1 in Ref. 22. All following calculations are based on this density distribution function.

III. RESULTS AND DISCUSSION

At first we focus on the anisotropy of the zero resistivity (irreversibility) field $B_{\rho=0}$. This quantity is less model dependent than J_c. It is independent of the pinning mechanism, the transport exponent and anisotropic scaling. Only the angular dependence of the upper critical field has to be known. Good agreement with the theoretical prediction of the anisotropic Ginzburg Landau theory[36],

$$B_\mathrm{c2}(\theta) = B_\mathrm{c2}^{ab}/\sqrt{\gamma^2\cos^2(\theta) + \sin^2(\theta)}, \tag{2}$$

was demonstrated[10,13,37,38]. It was shown in Ref. 16, that $B_{\rho=0}$ in untextured materials is given by

$$B_{\rho=0} = \frac{B_\mathrm{c2}^{ab}}{\sqrt{(\gamma^2-1)p_\mathrm{c}^2+1}}. \tag{3}$$