

$$\sigma(d\sigma)\propto \prod_{k=1}^{N_d} \sigma_k^{-\alpha_k^0-\frac{3}{2}} \exp\left(-\frac{\beta_k^0+\frac{1}{2}\mathbb{E}^{\nu^u}[(d_k-(Hu)_k)^2]}{\sigma_k}\right)d\sigma,$$