Degree sequences of random uniform hypergraphs

For $\mathbf{d} = \{d_1, \ldots, d_n\}$ consider $P_r(\mathbf{d})$, be the probability that a random graph selected uniformly from the set of r-uniform hypergraphs with n vertices and m edges, has degree sequence $\mathbf{d}$. Previously the value of this probability has been investigated by Kamčev, Liebenau and Wormald, where they examined degree sequences from very sparse to moderately dense hypergraphs when $r = o(n^{1/4})$ and the variation of the degrees is small, but exceeds the typical degree variation in random hypergraphs.

We extend their results, by establishing $P_r(\mathbf{d})$ for dense hypergraphs, which hold for any r and allow for a greater variation on the degrees.

This is joint work with Catherine Greenhill, Mikhail Isaev and Brendan McKay.