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The dynamic pair distribution function of superfluid ^4He
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sity of Tennessee, GEORG EHLERS, Oak Ridge National Laboratory, TAKESHI
EGAMI, Oak Ridge National Laboratory / University of Tennessee — We present
precision neutron scattering measurements of the spatial and time correlations be-
tween atoms in liquid ^4He using dynamic pair distribution methods. As the Bose-
Einstein condensate (BEC) sets in below the superfluid transition temperature T_λ ,
we observe clear changes in the local environment of the atoms. These local changes
are investigated beyond the first coordination shell. We also test our observations
against recent classical and ab-initio molecular dynamics simulations in which the
local configurational excitations in the atomic connectivity network was found to be
the elementary excitation in some liquid metals.

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