

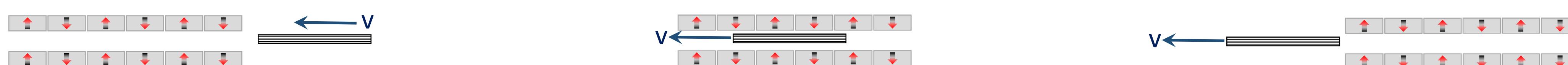
EFFECT OF LOCAL IN-HOMOGENEITIES IN SUPERCONDUCTING BARS AND TAPES ON THE HYSTERESIS FORCE

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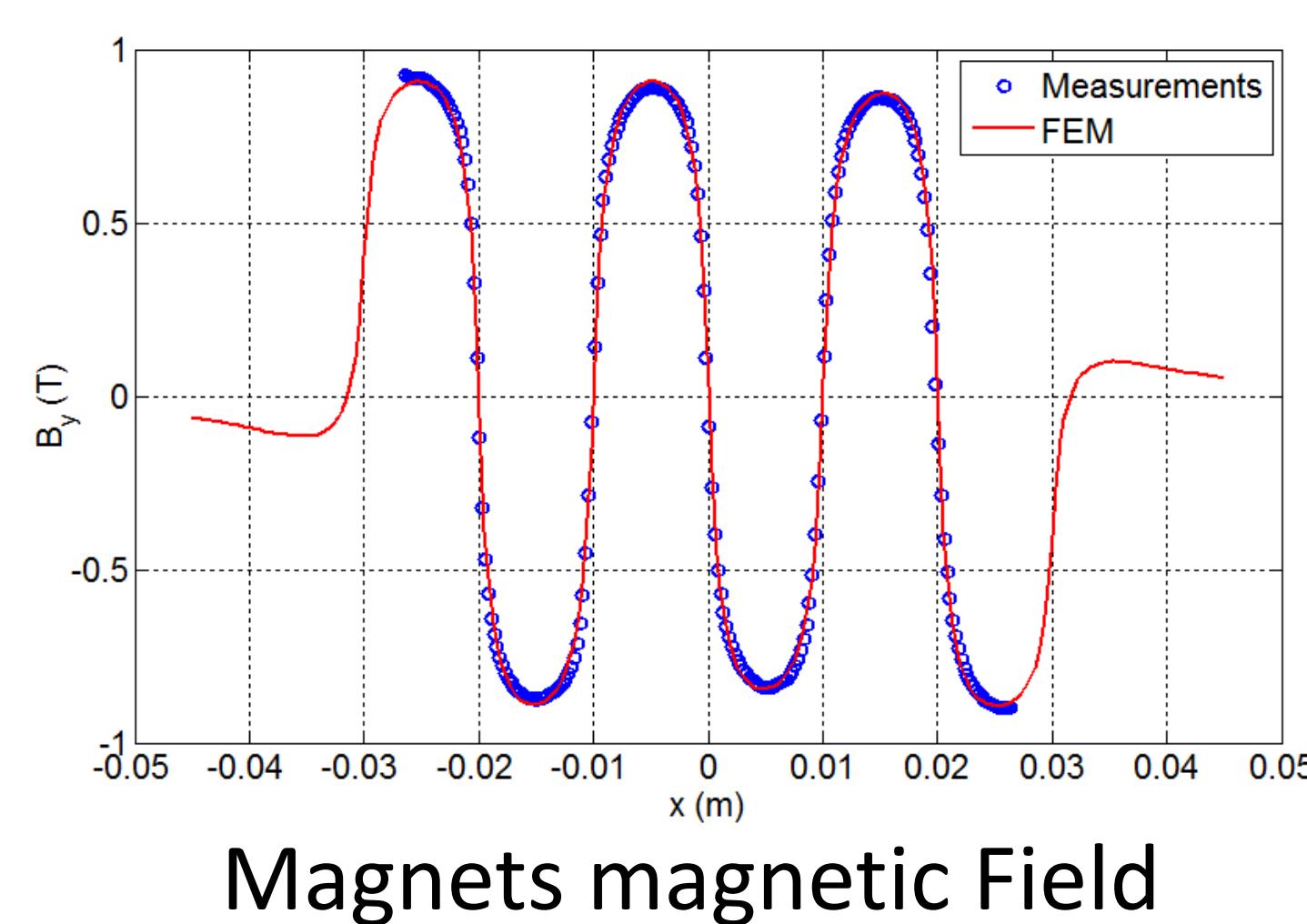
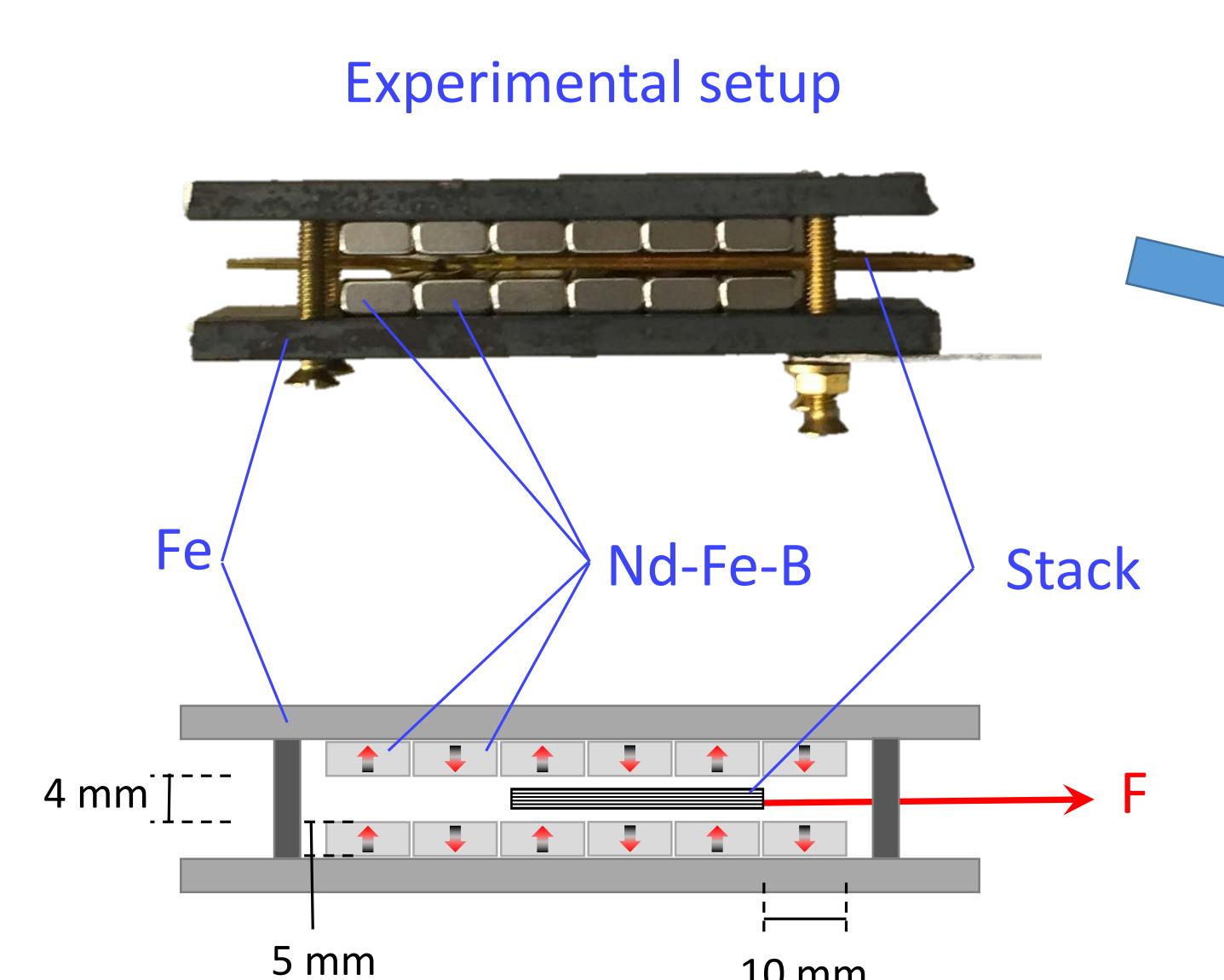
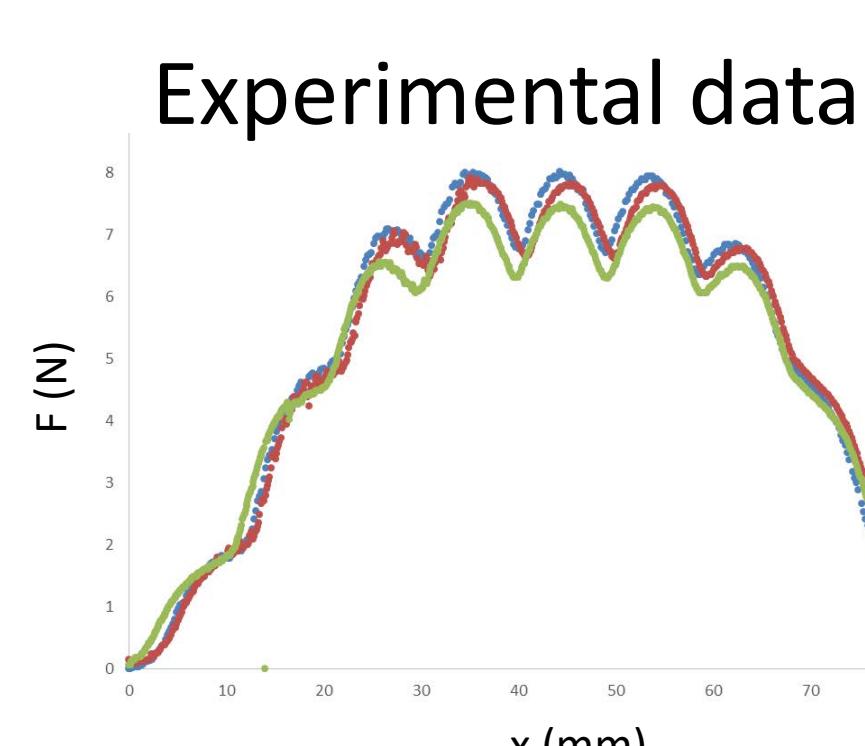
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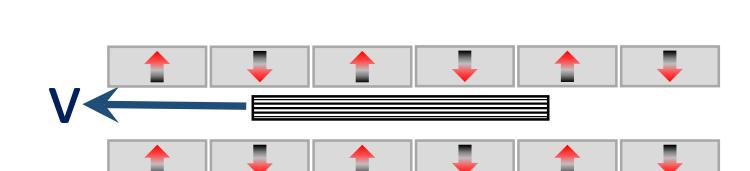
The Stack is displaced at a constant speed in the space between magnets



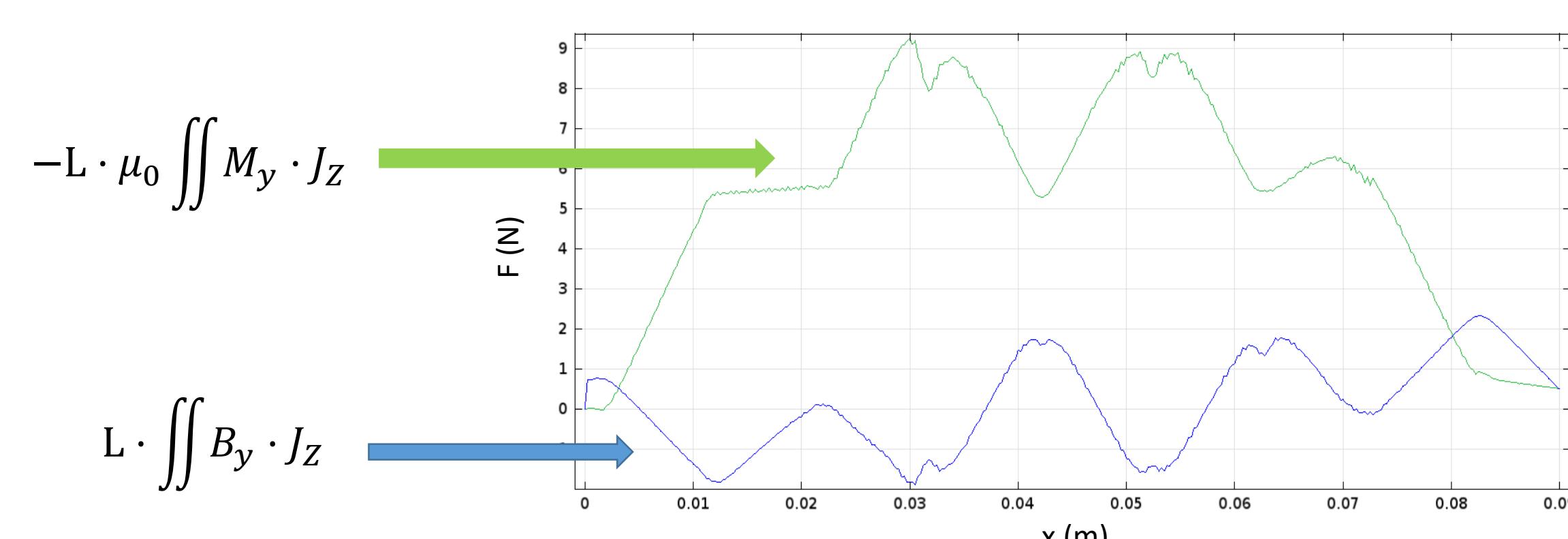
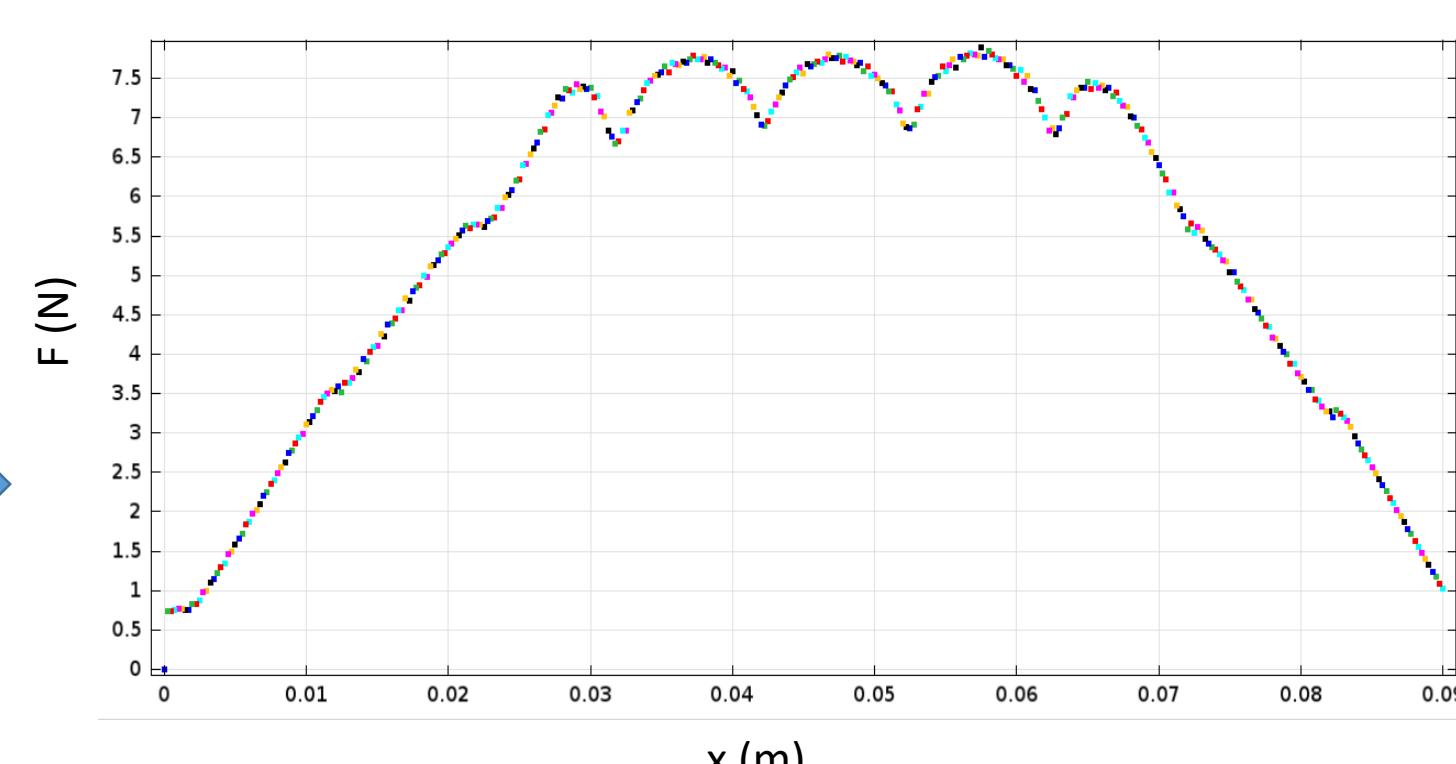
- Tape Characteristics**
- SuperPower (SF12050-AP, 2013)
 - I_c av. = 281 A (Self Field, 77 K)
 - $n = 35$ (Self Field, 77 K)
 - 9 layers
 - Width = $D = 12$ mm
 - Length = $L = 30$ mm
 - Thickness total = 510 μm



SIMULATIONS

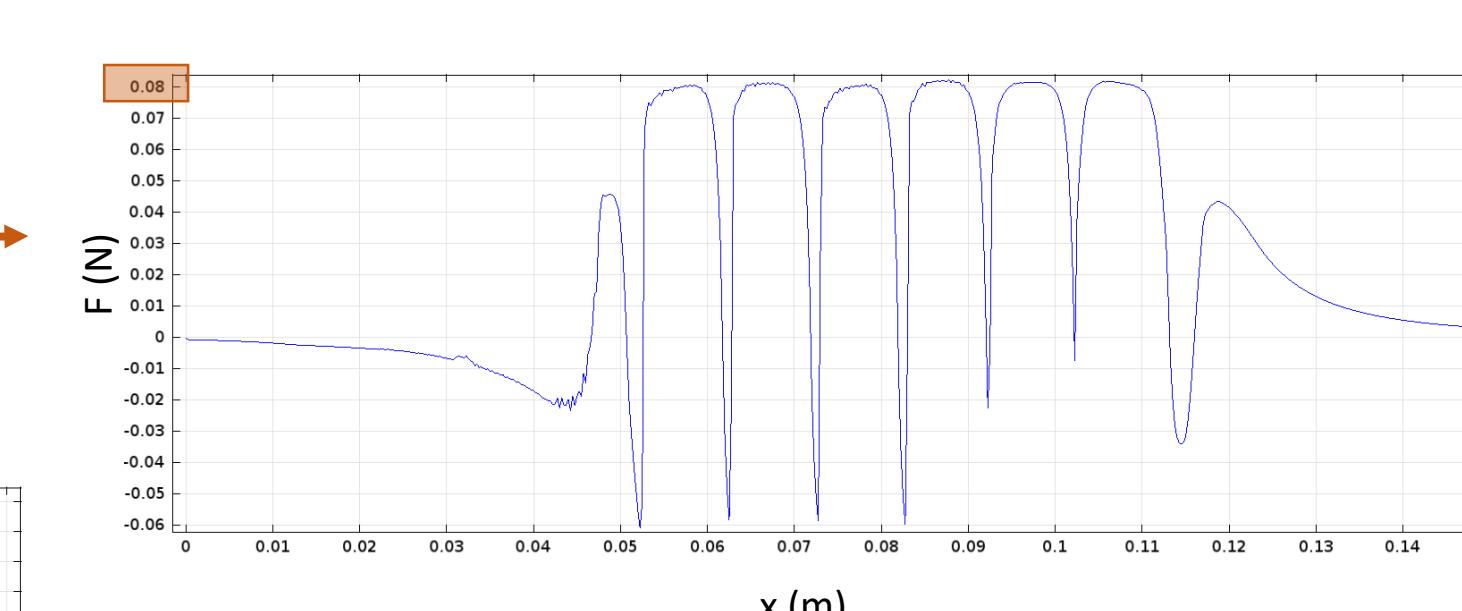
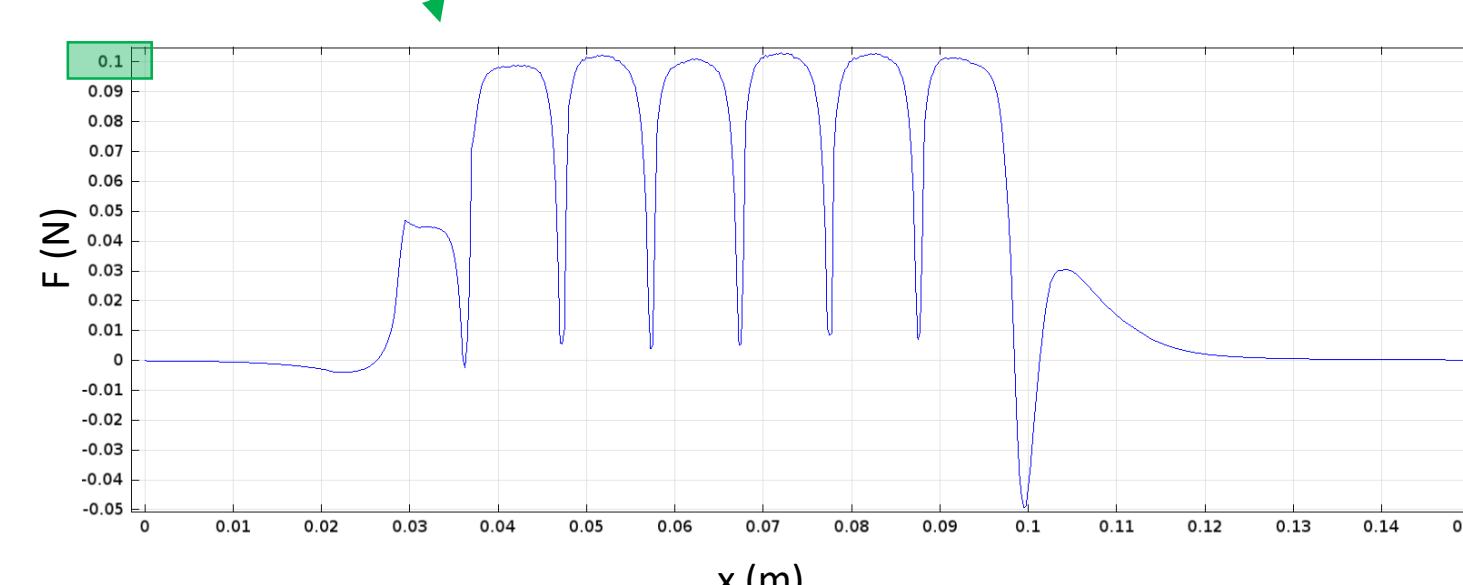
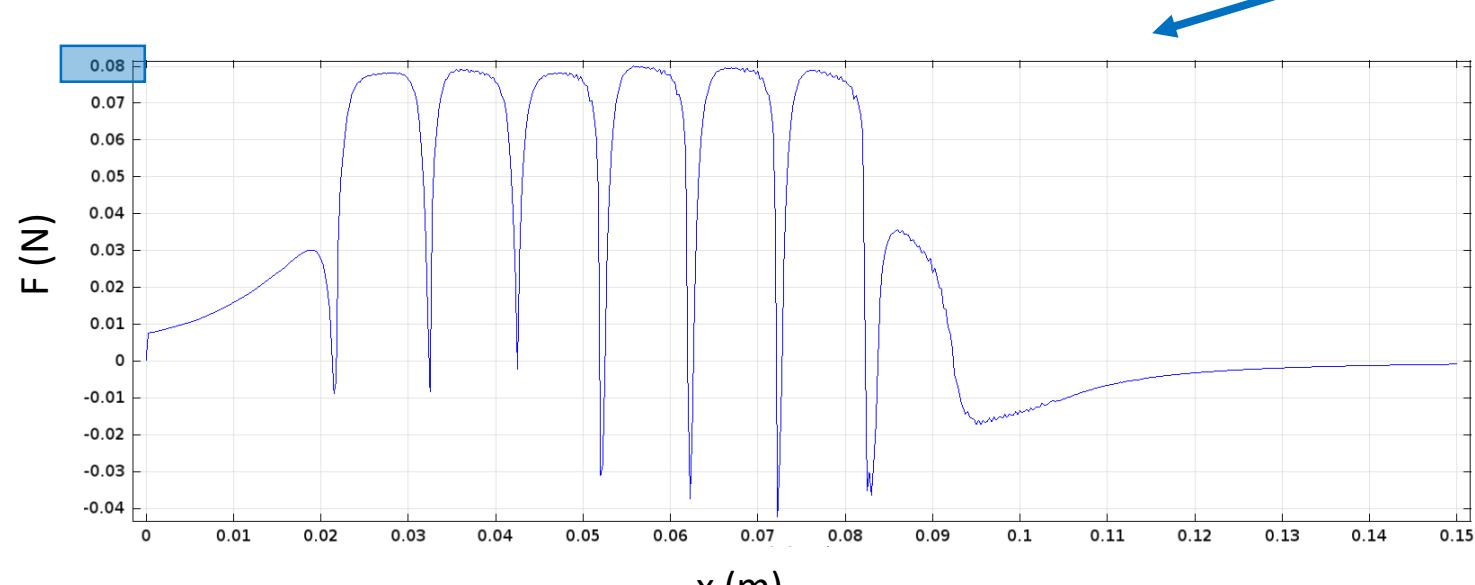


$$F_x = L \cdot \left(\iint B_y \cdot J_z - \mu_0 \cdot \iint M_y \cdot J_z \right)$$



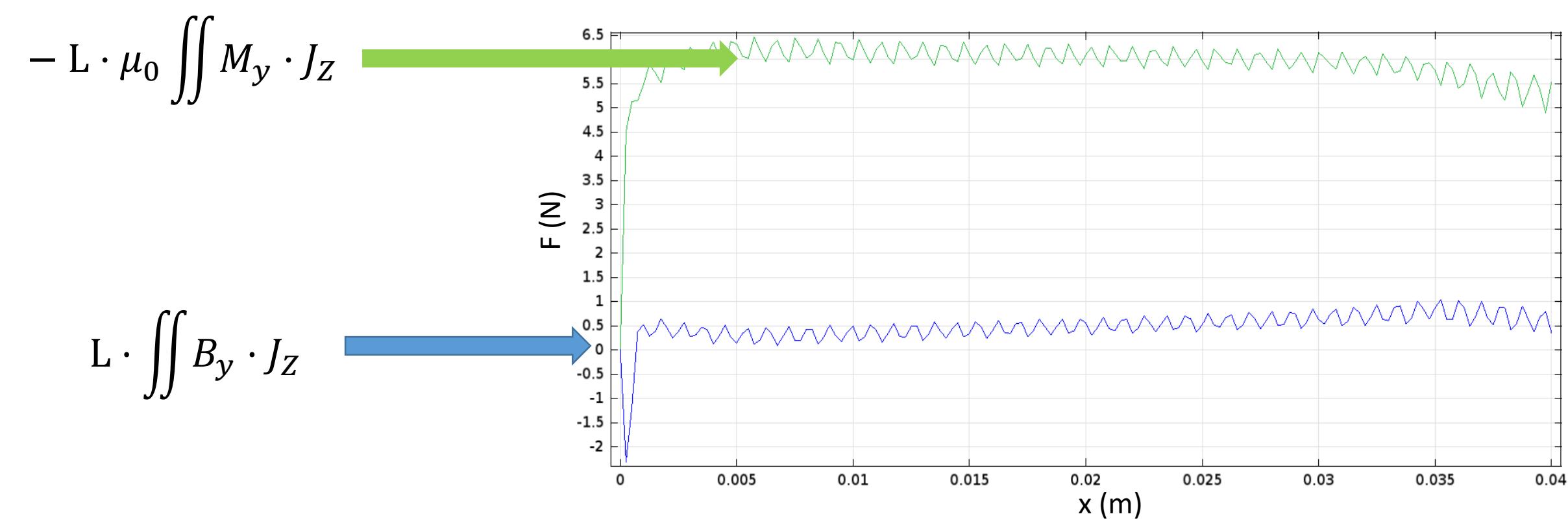
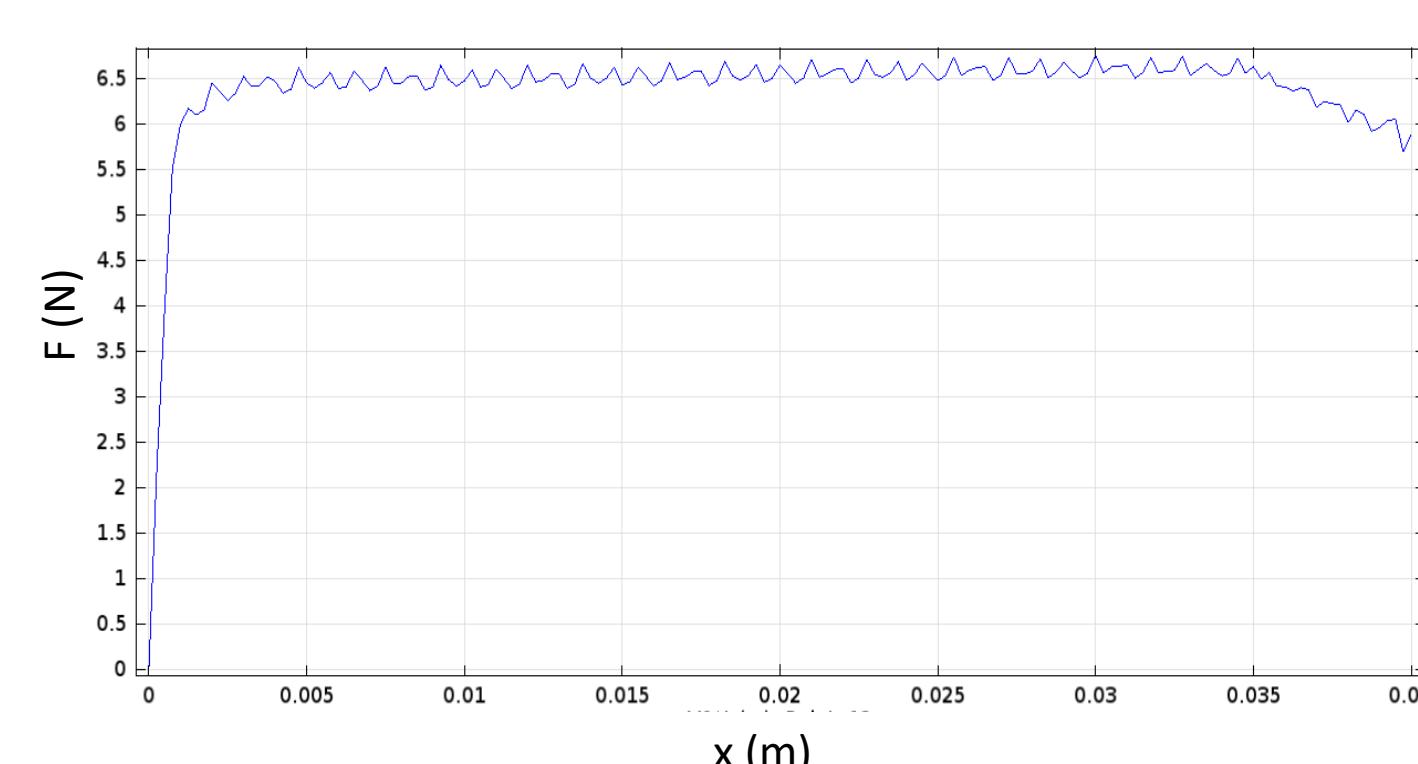
The distribution of peaks in the Force are generated by the short length of the Stack respect the length of the set of magnets

The contribution, to the total force, of each element of the Stack is not homogeneous. Central part is more important than the ends

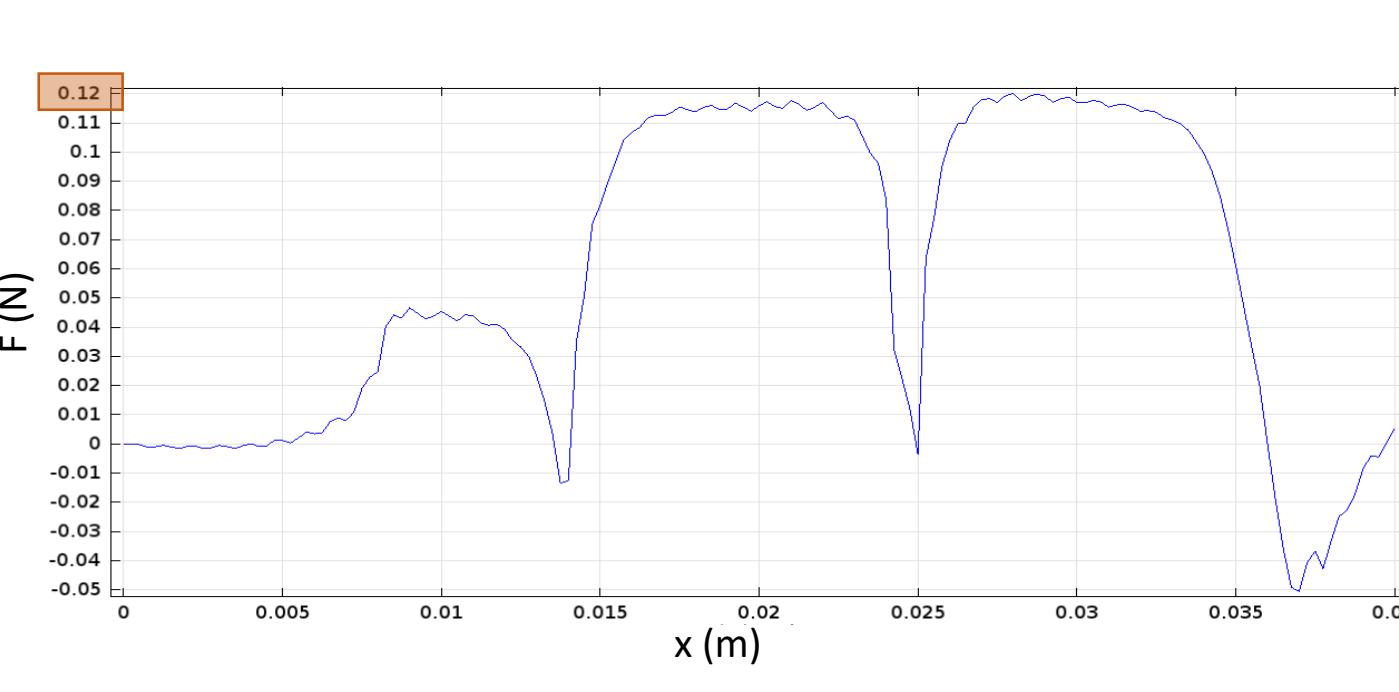
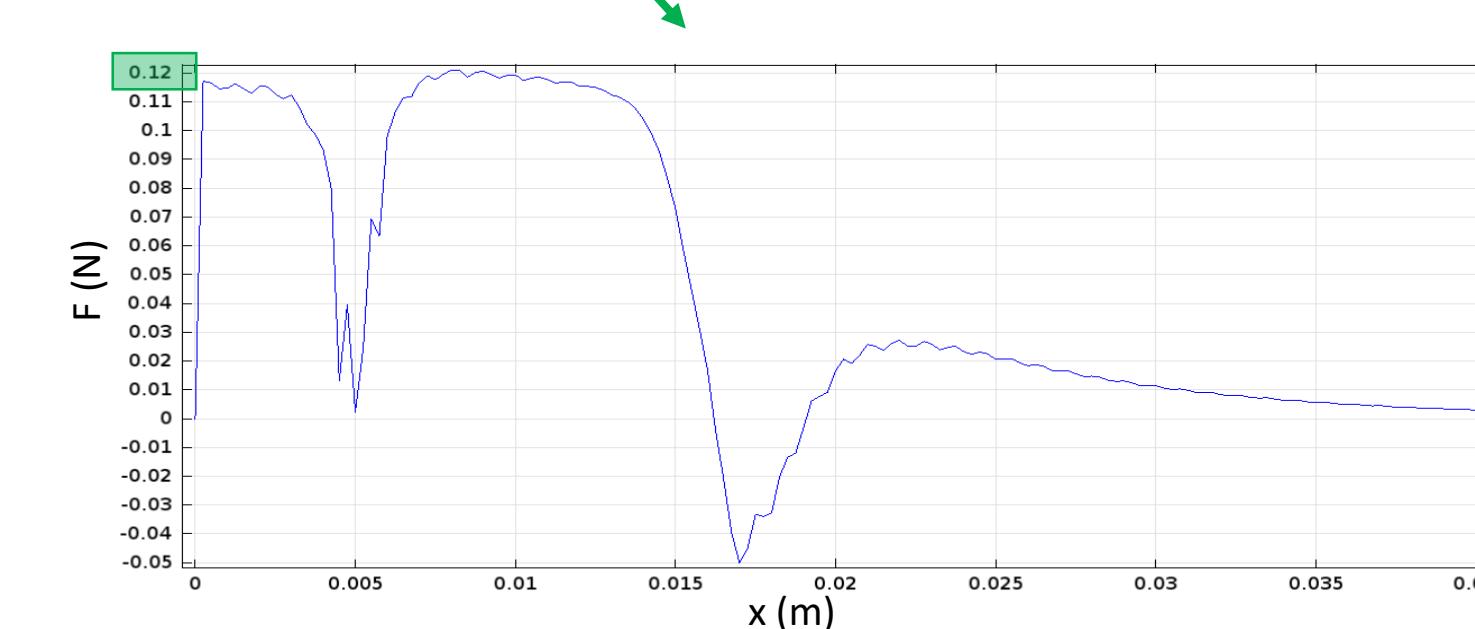
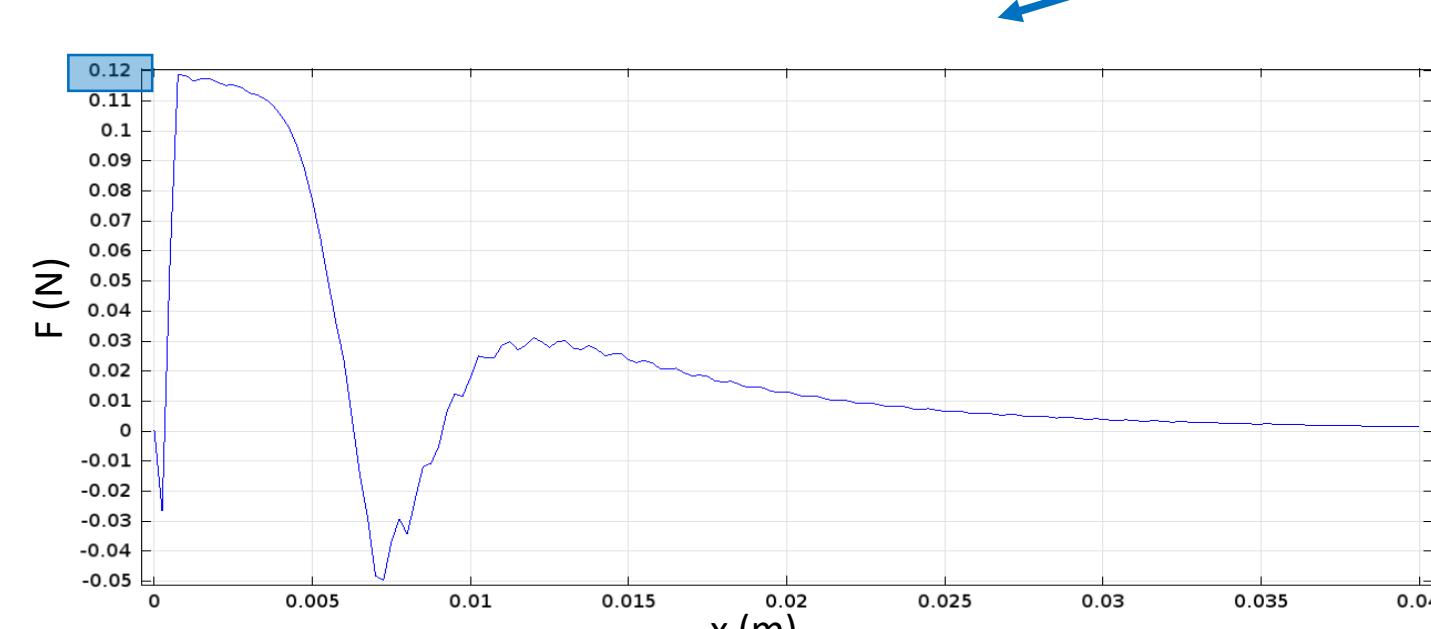


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$$F_x = L \cdot \left(\iint B_y \cdot J_z - \mu_0 \cdot \iint M_y \cdot J_z \right)$$



When the length of the stack is greater than the space occupied by the magnetic field, the peaks in the force disappear and the contribution of each element of the Stack is equivalent and independent of its position



ACKNOWLEDGMENTS

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