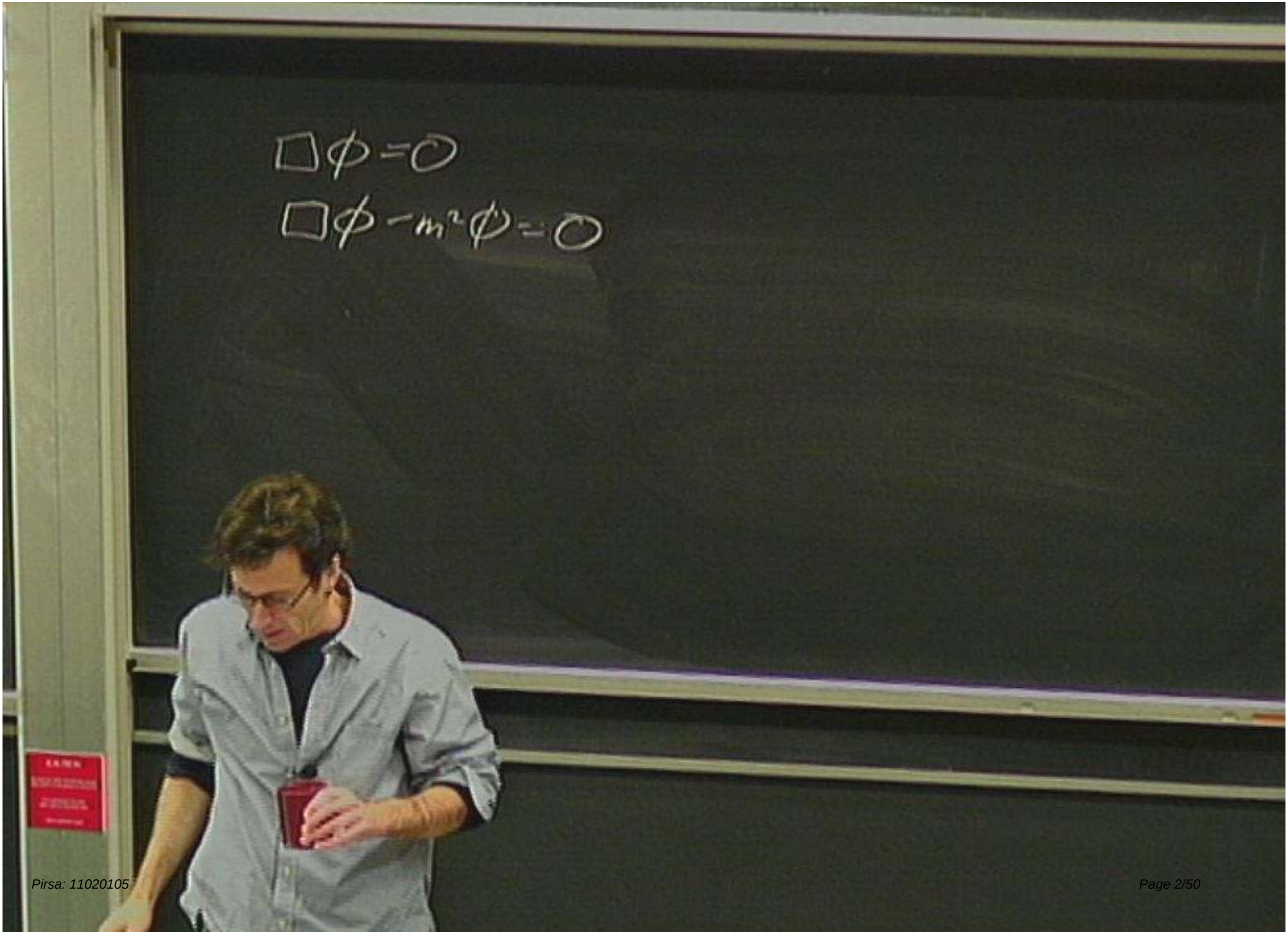
Title: The universe in a grain of sand

Date: Feb 04, 2011 01:00 PM

URL: http://pirsa.org/11020105

Abstract: Recently rediscovered results in the theory of partial differential equations show that for free fields, the properties of the field in an arbitrarily small volume of space, traced through eternity,
determine completely the field everywhere at all times. Over finite
times, the field is determined in the entire region spanned by the intersection of the future null cone of the earliest event and the past
null cone of the latest event. Thus this paradigm of classical field
theory exhibits a fascinating form of nonlocality. I'll discuss this result and what it tells us about the possibility of constructing a classical, nonlocal theory which accommodates all the phenomena we observe.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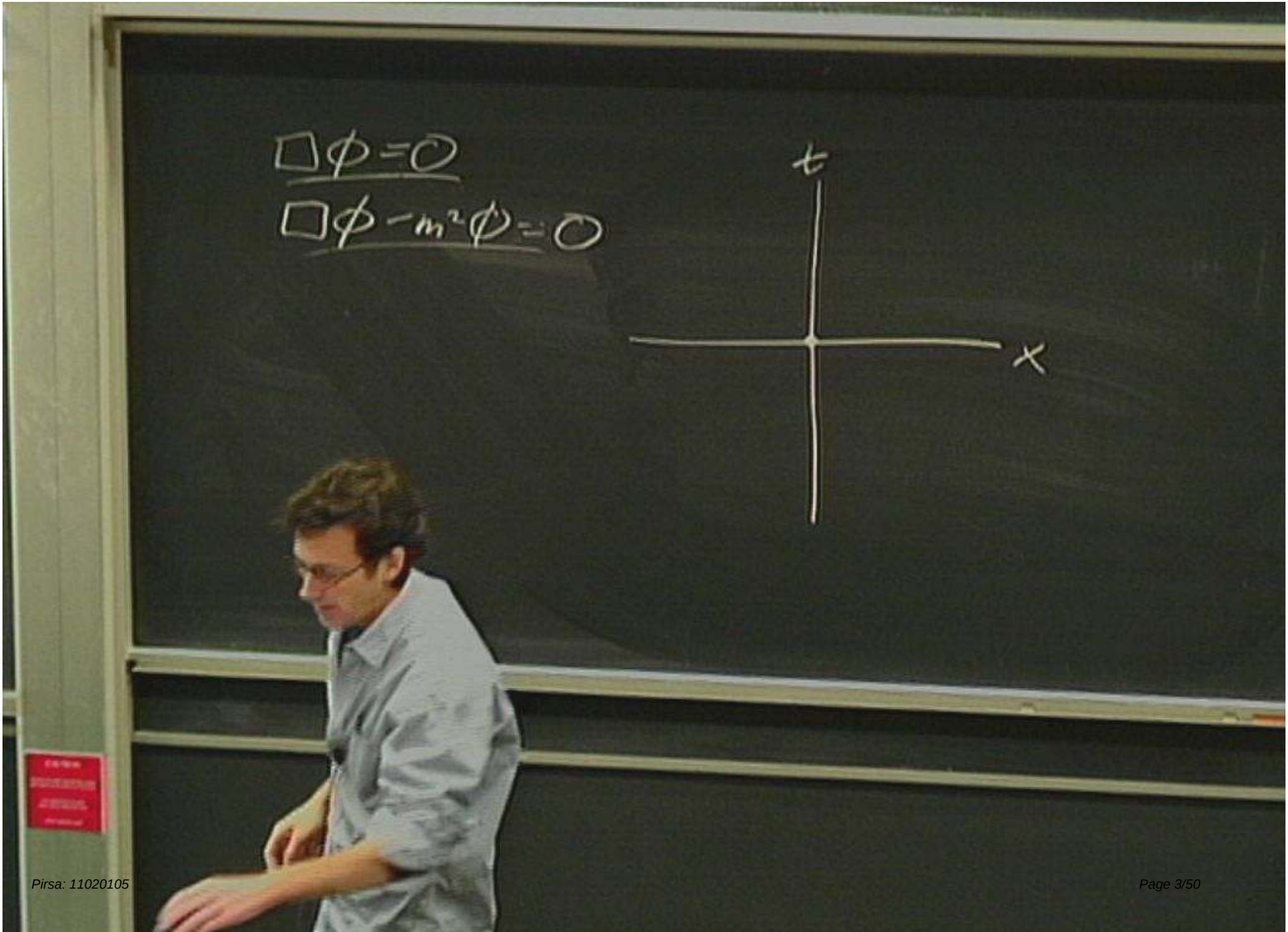
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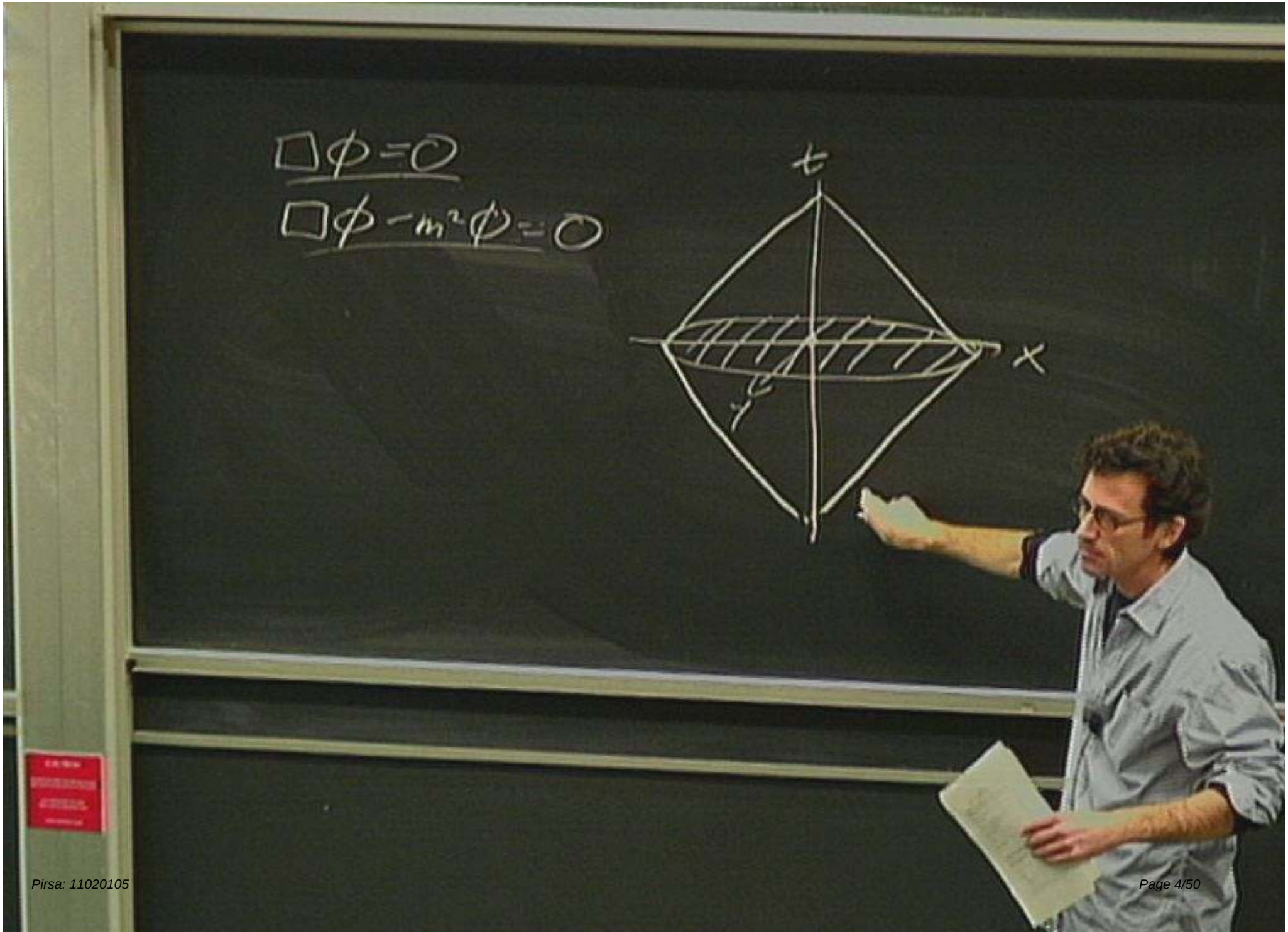
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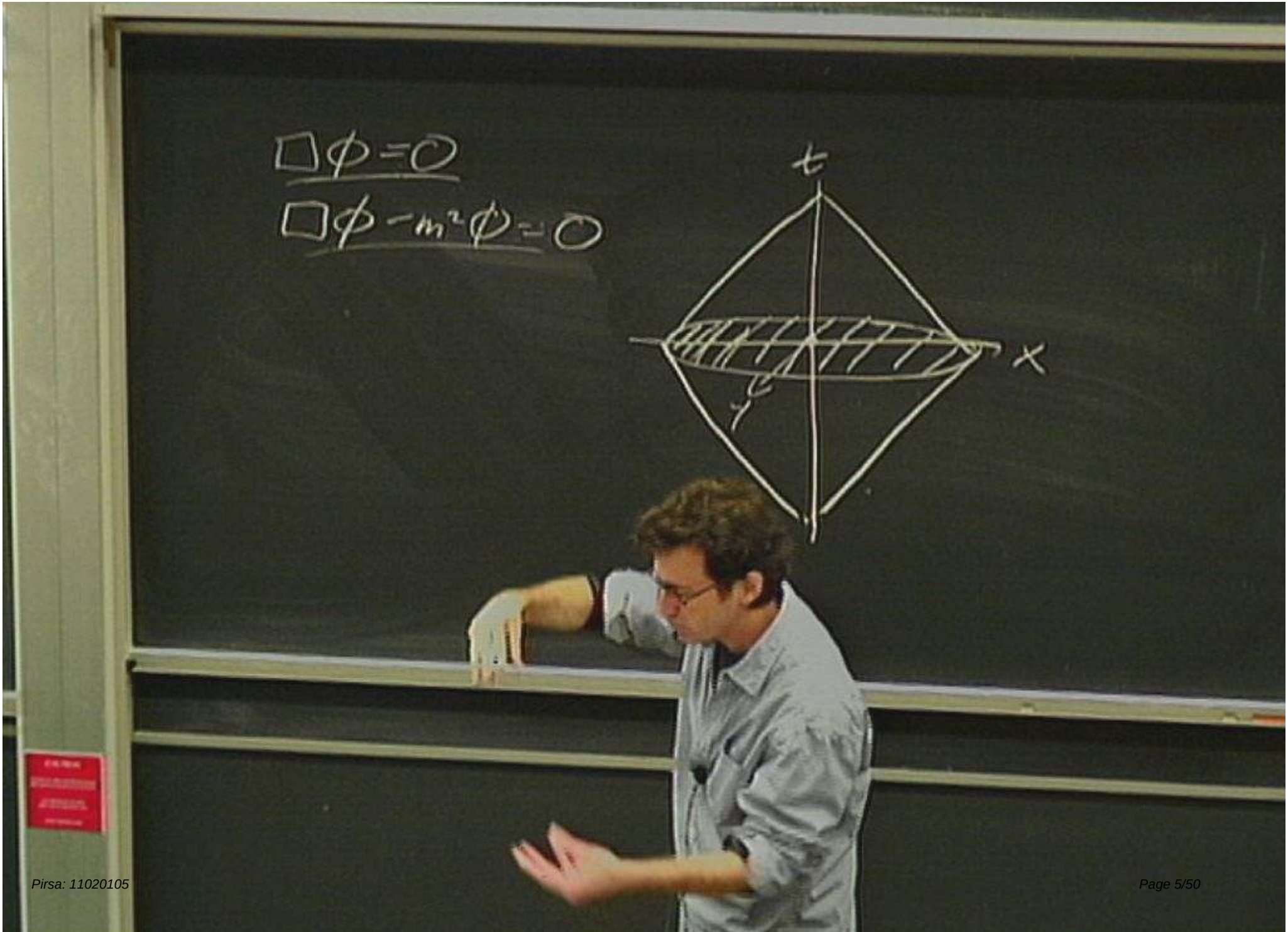
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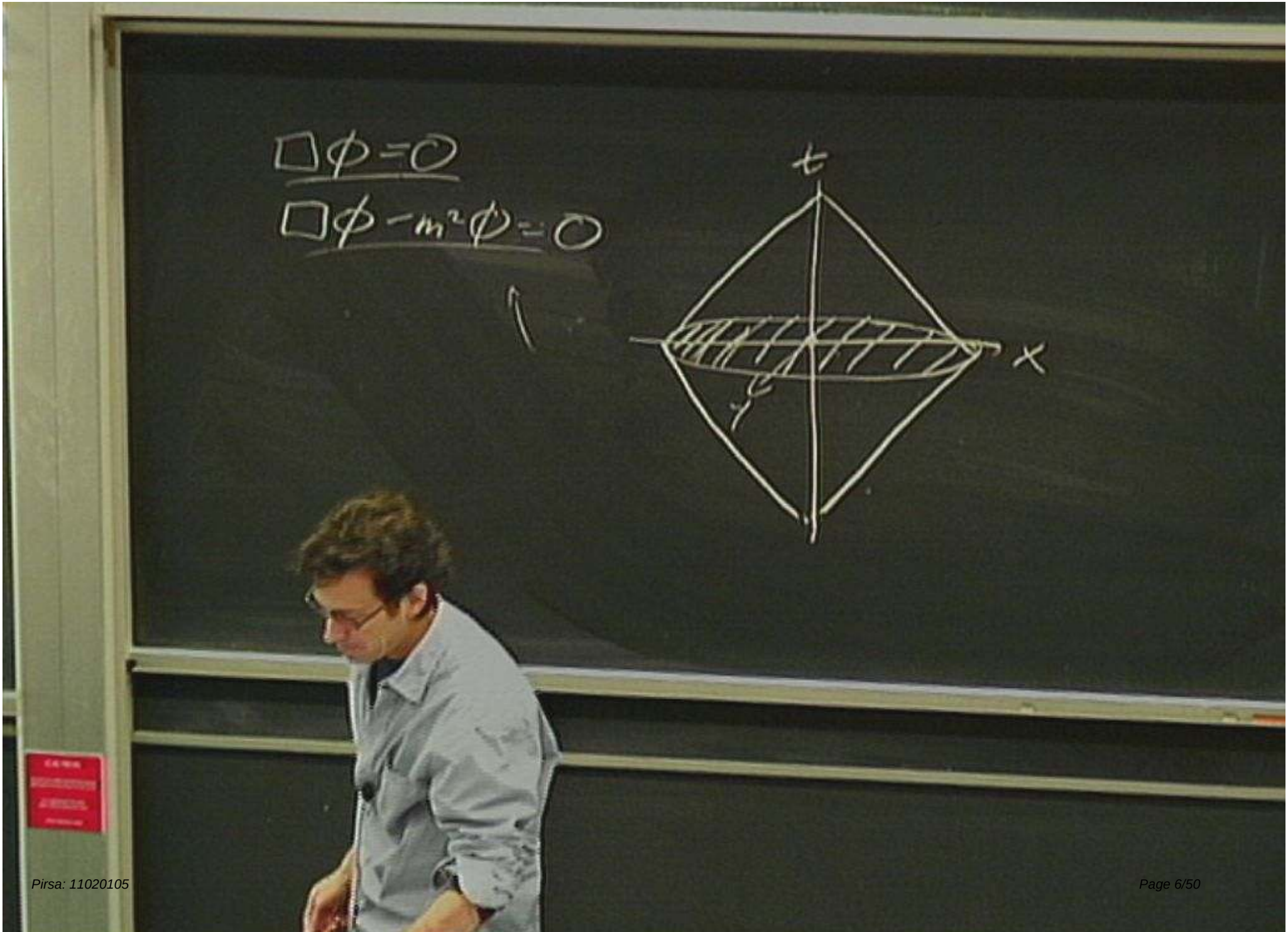
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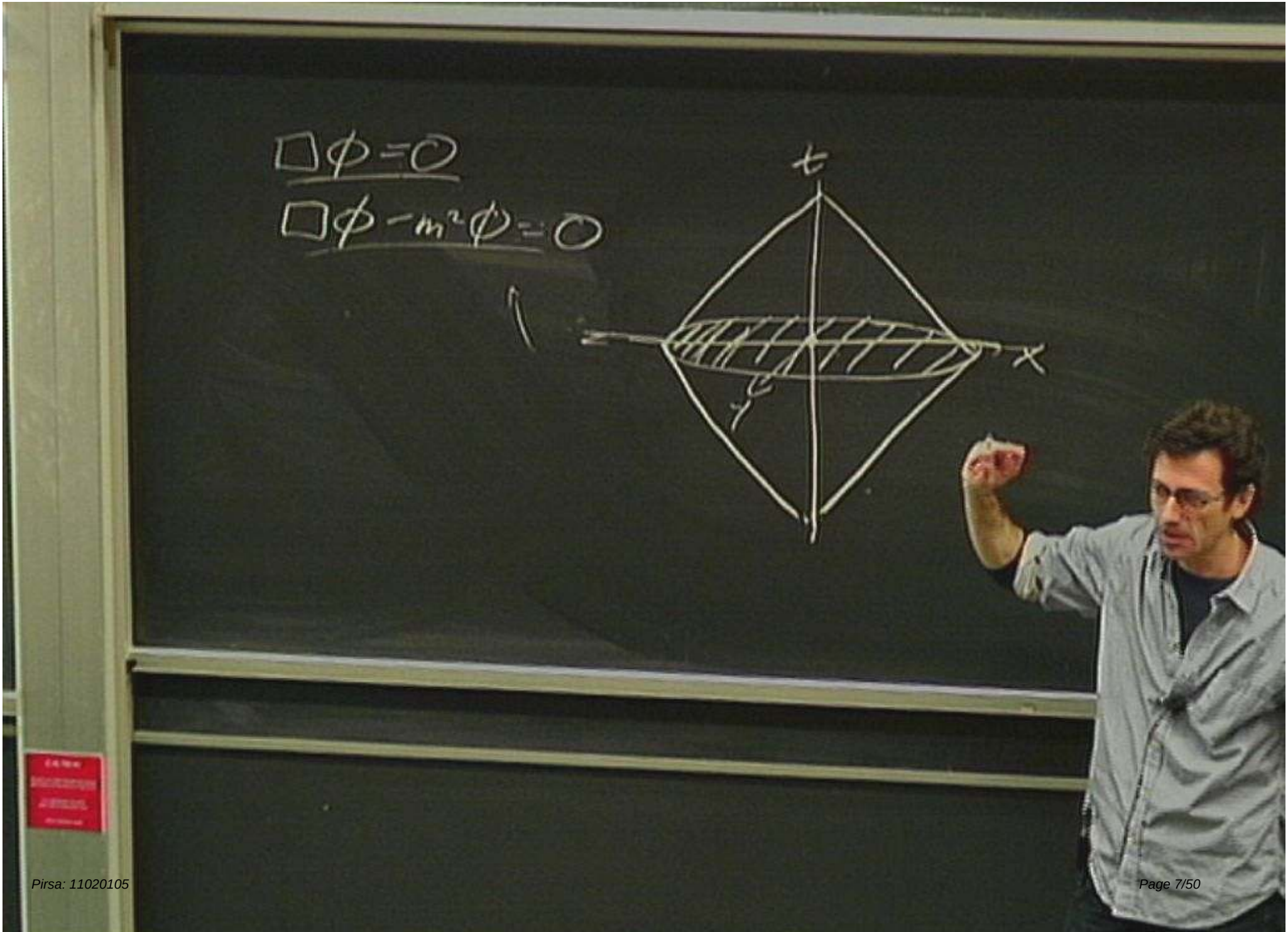
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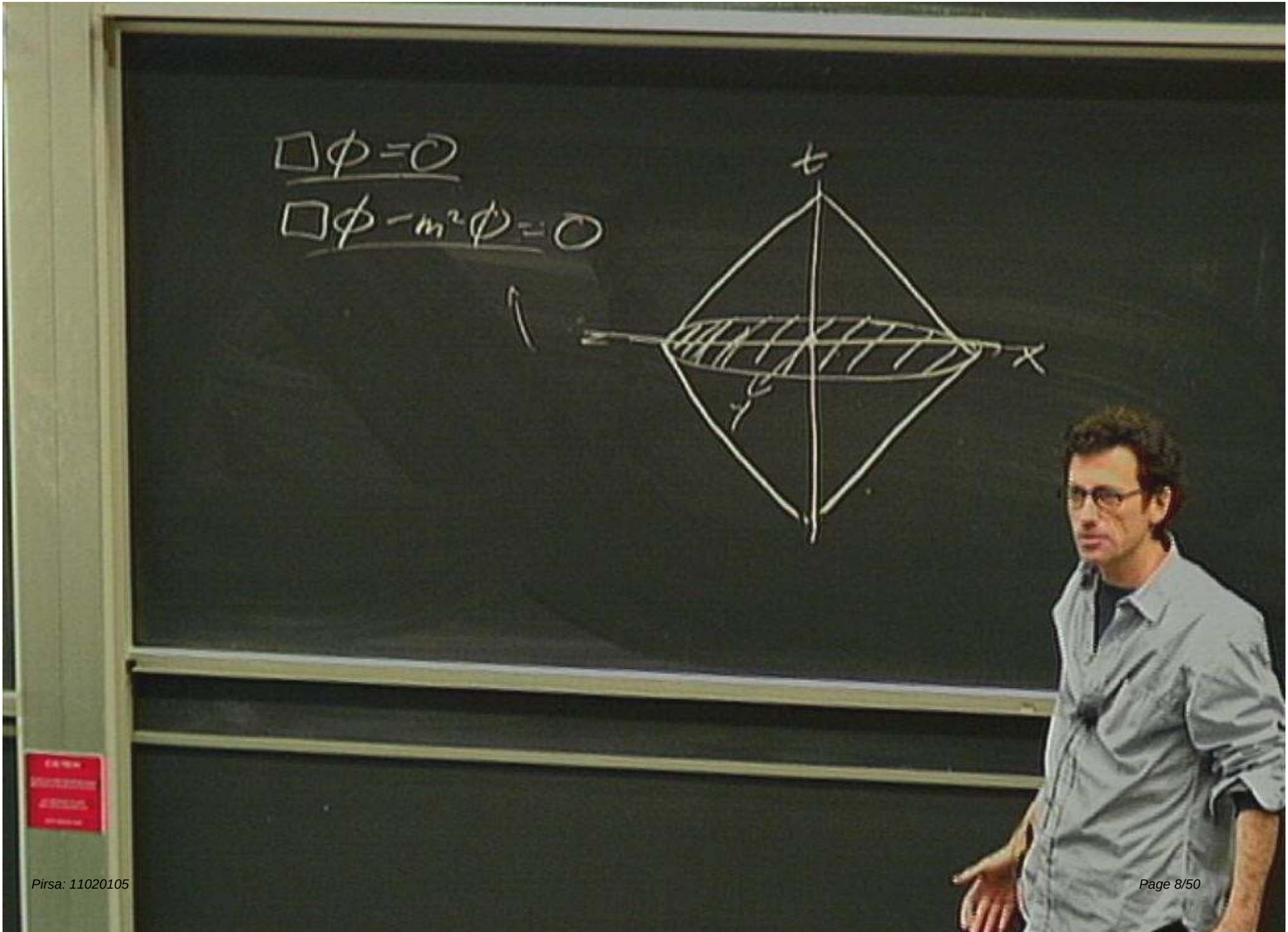
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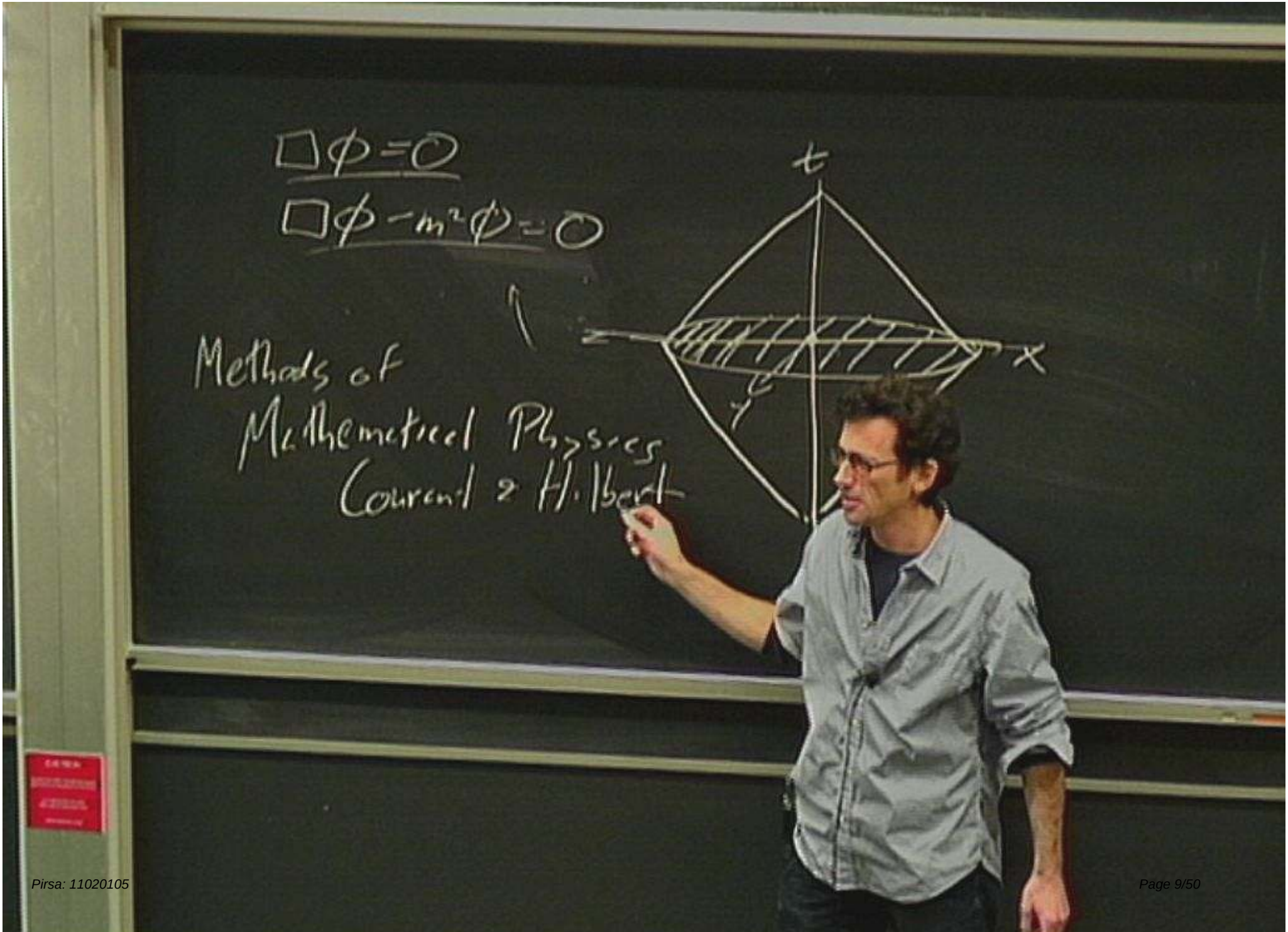
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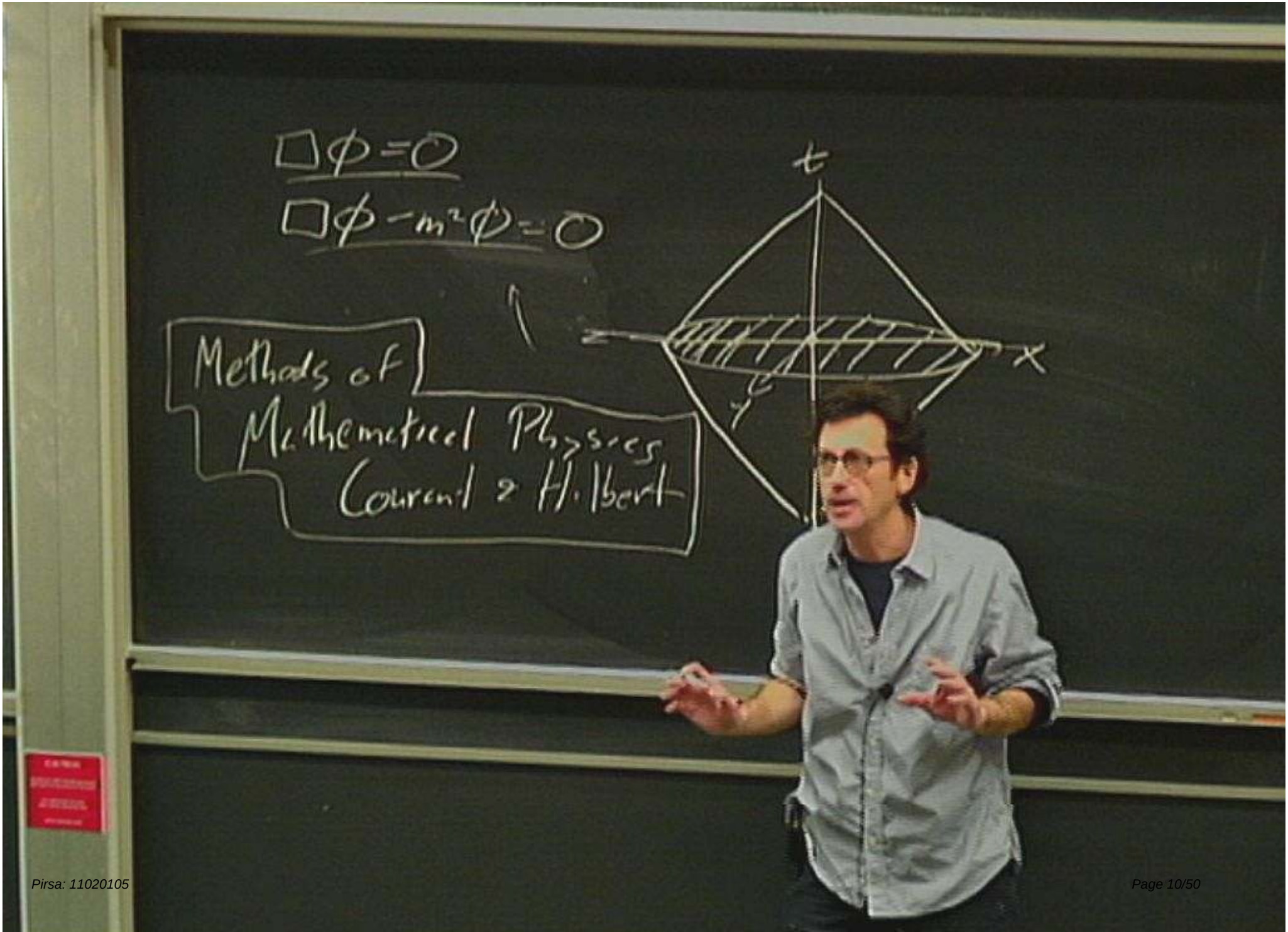
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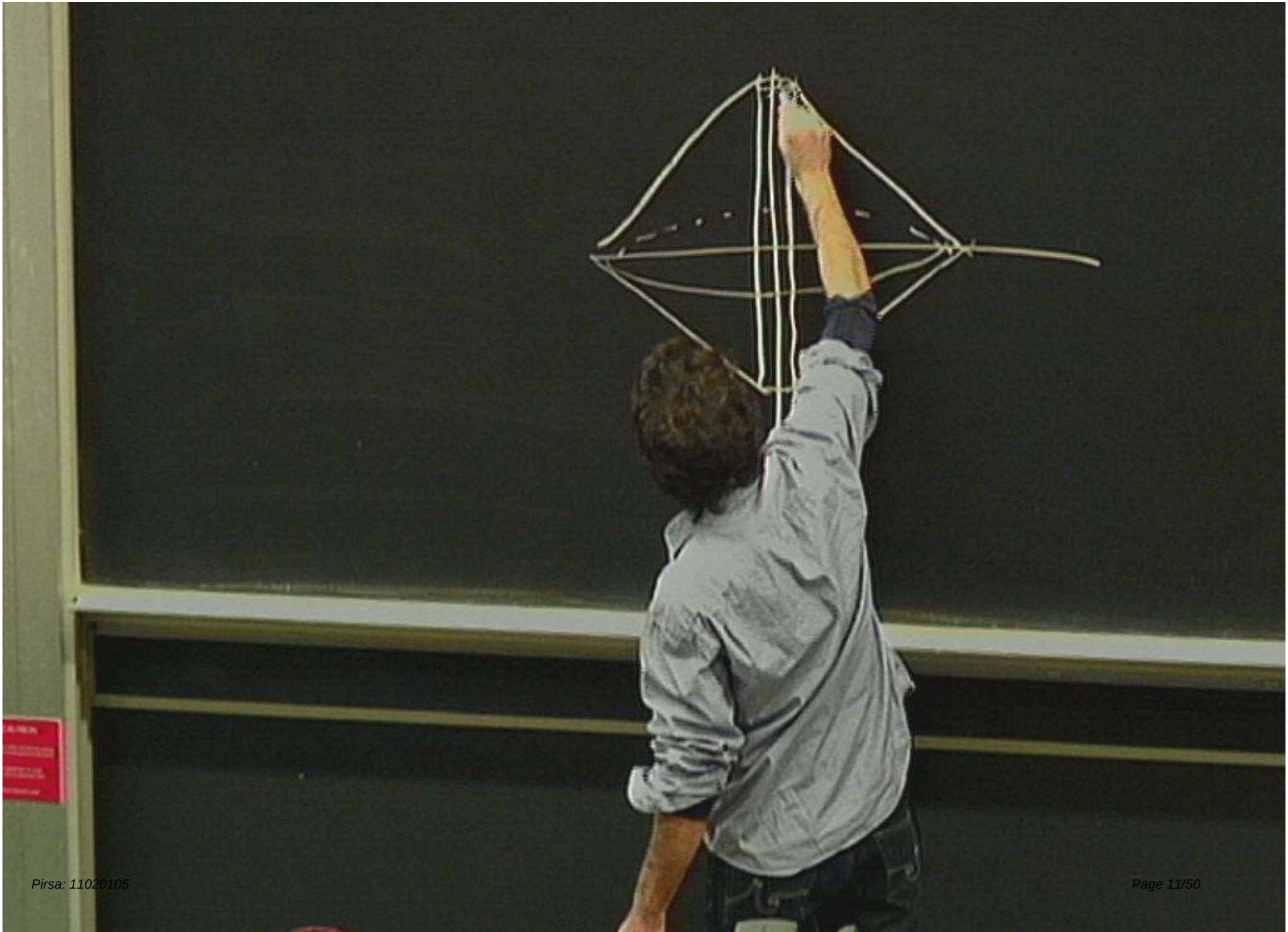

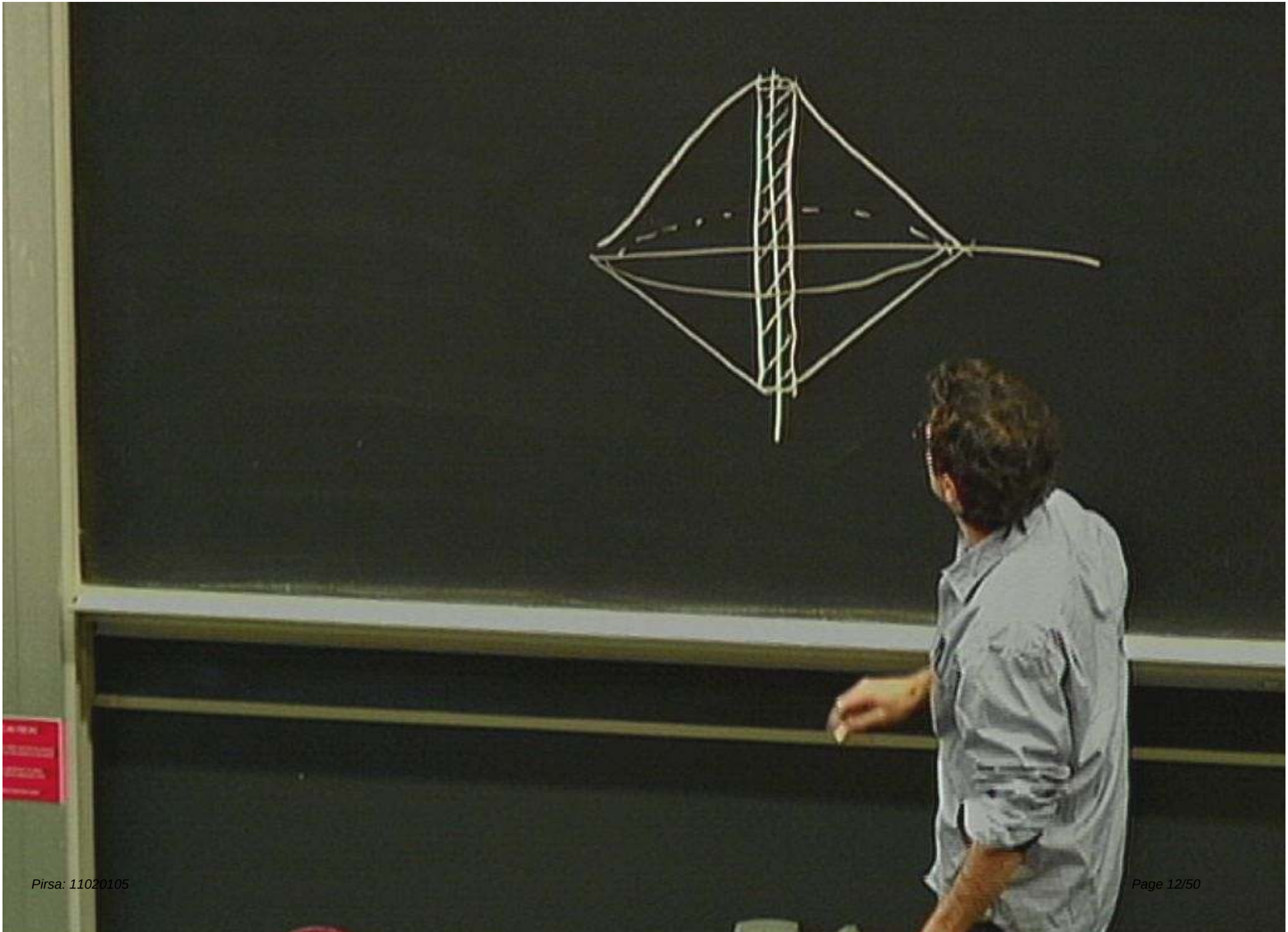

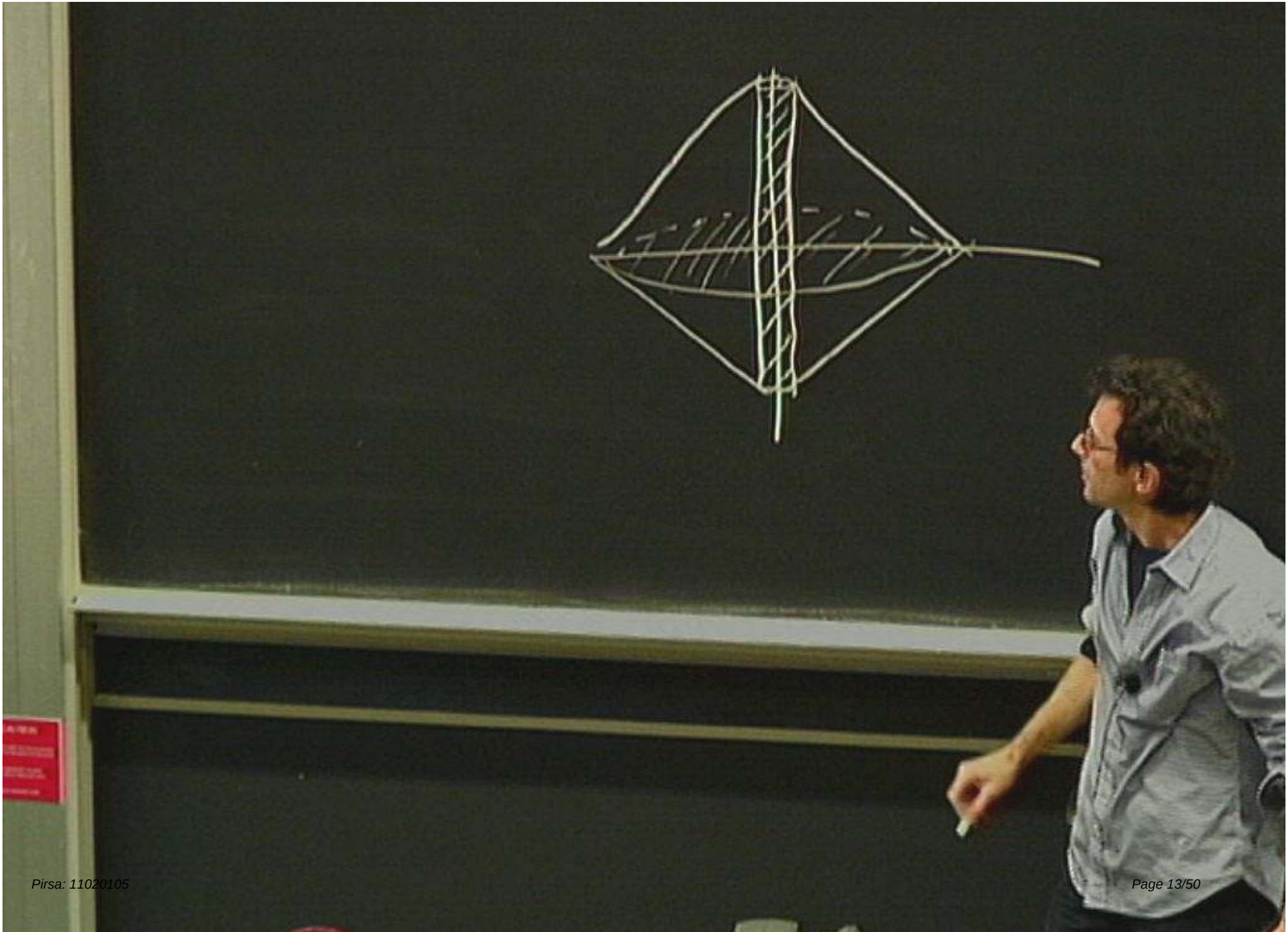

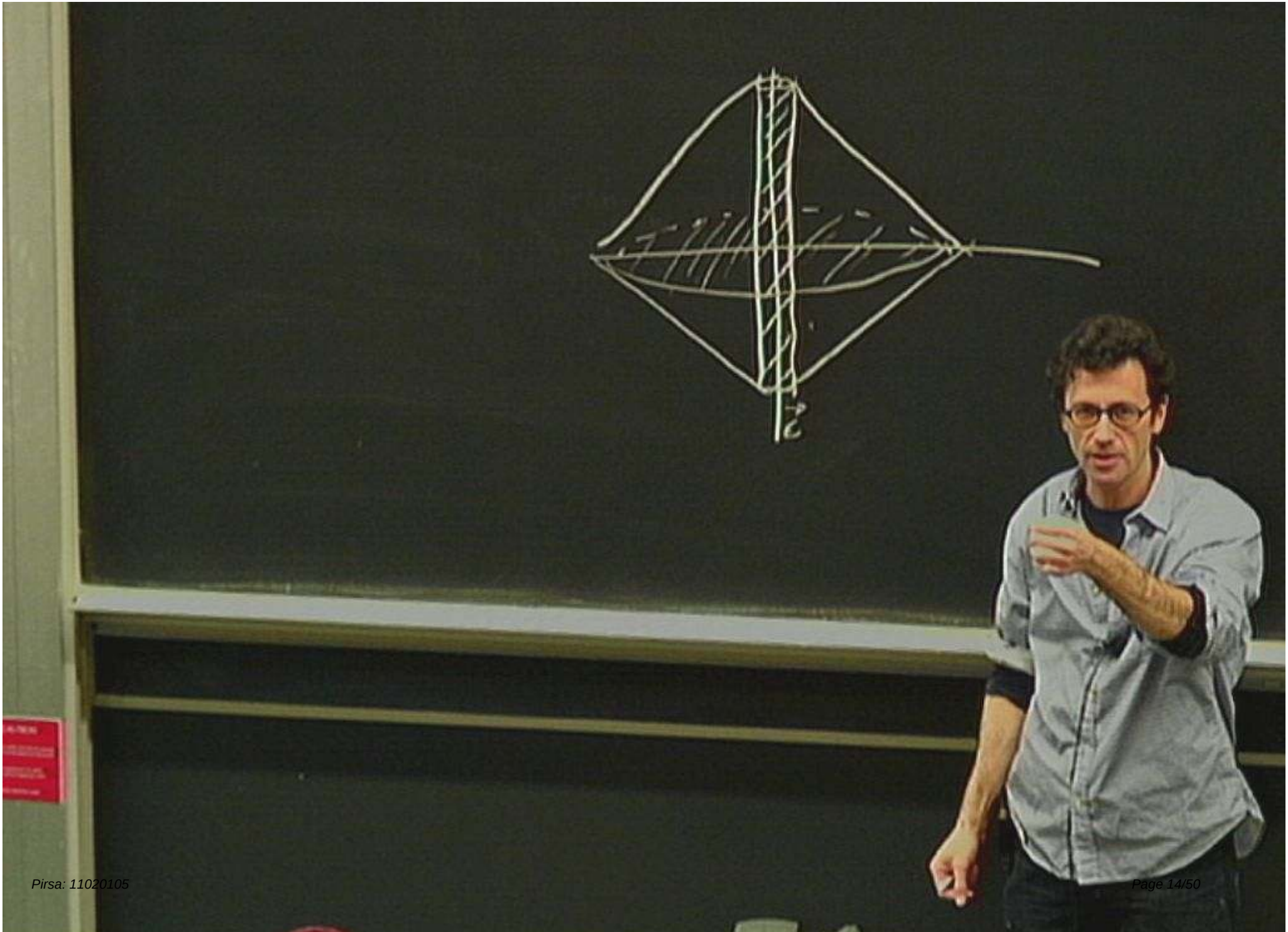

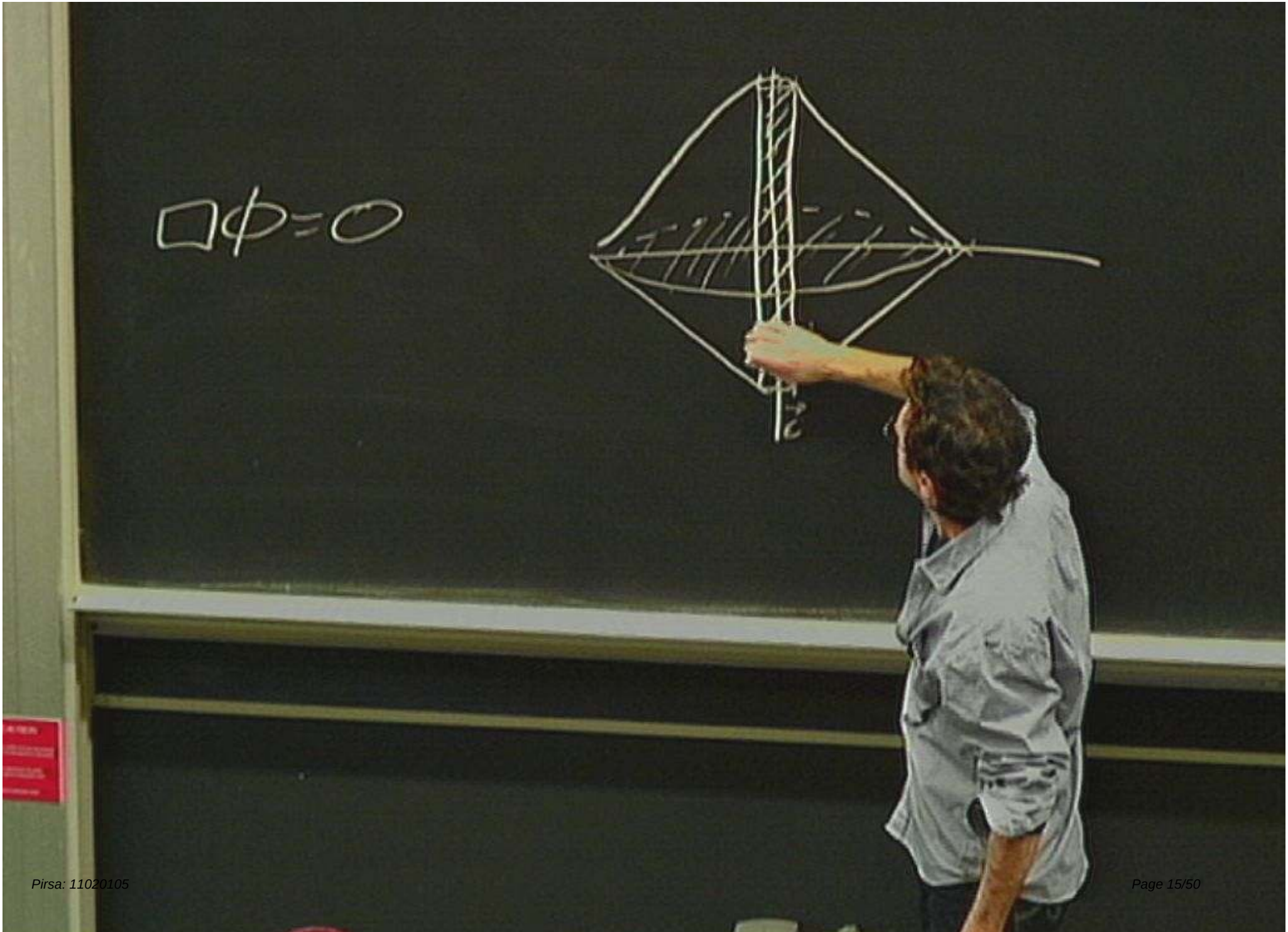
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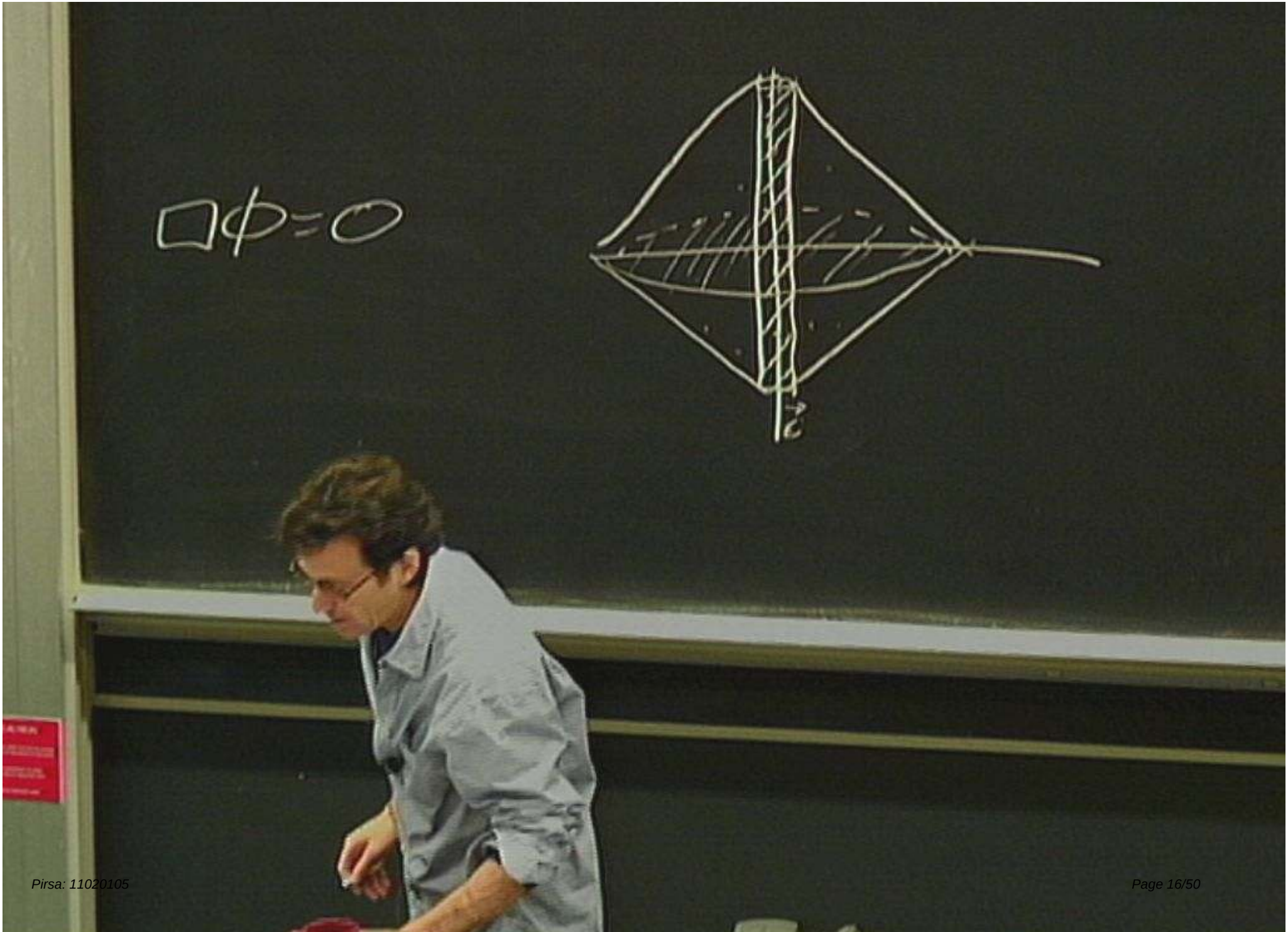
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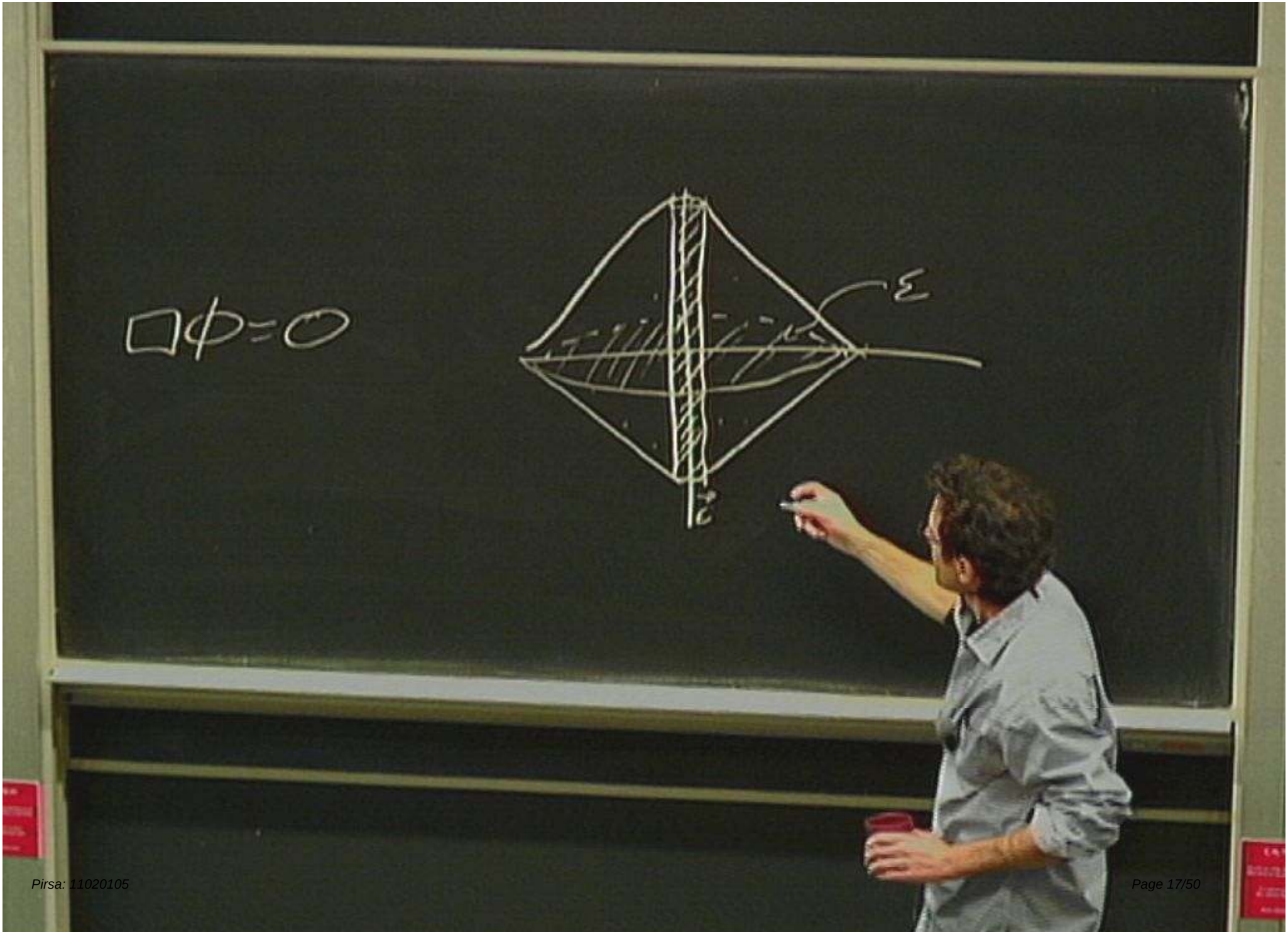
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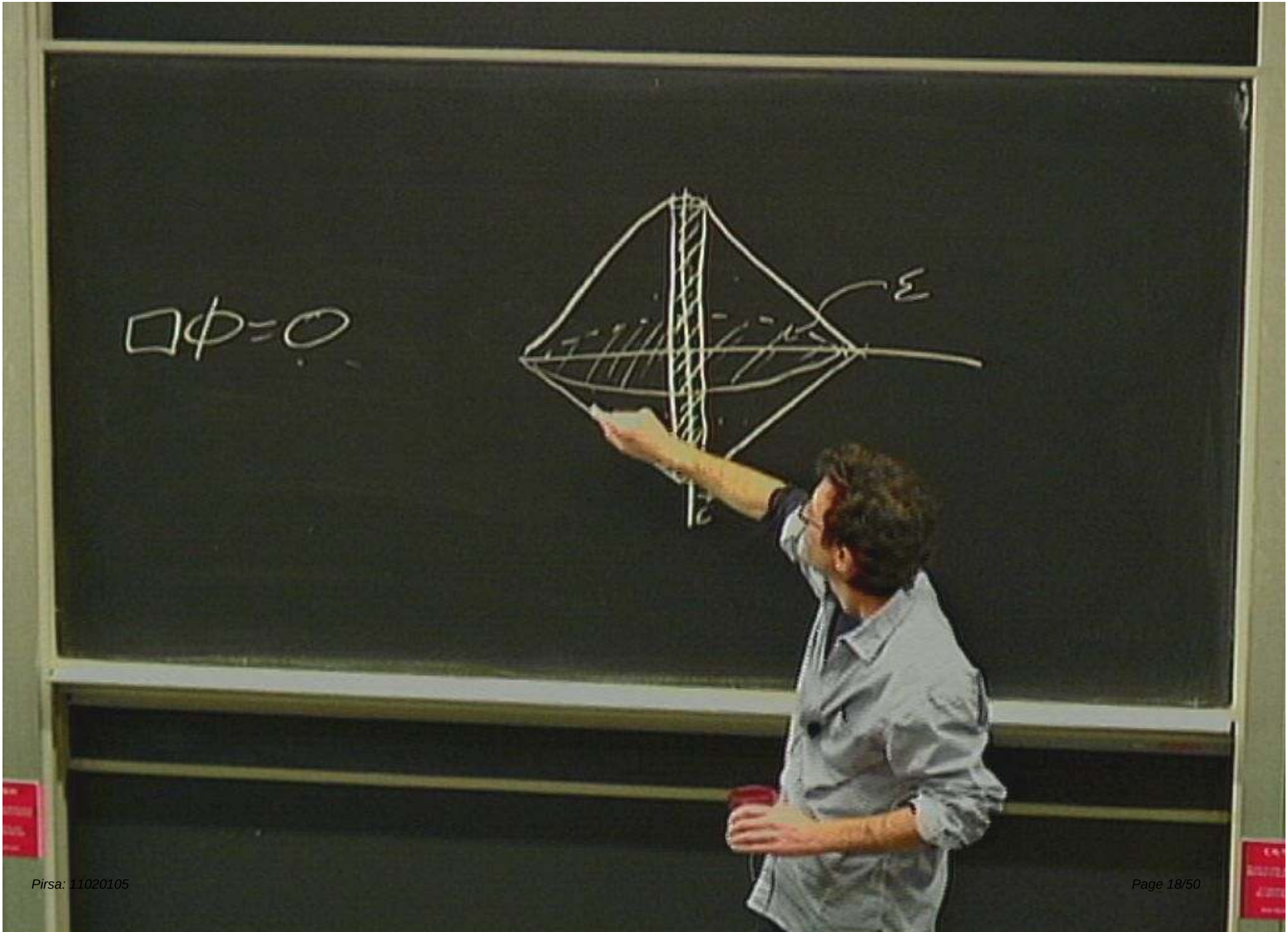
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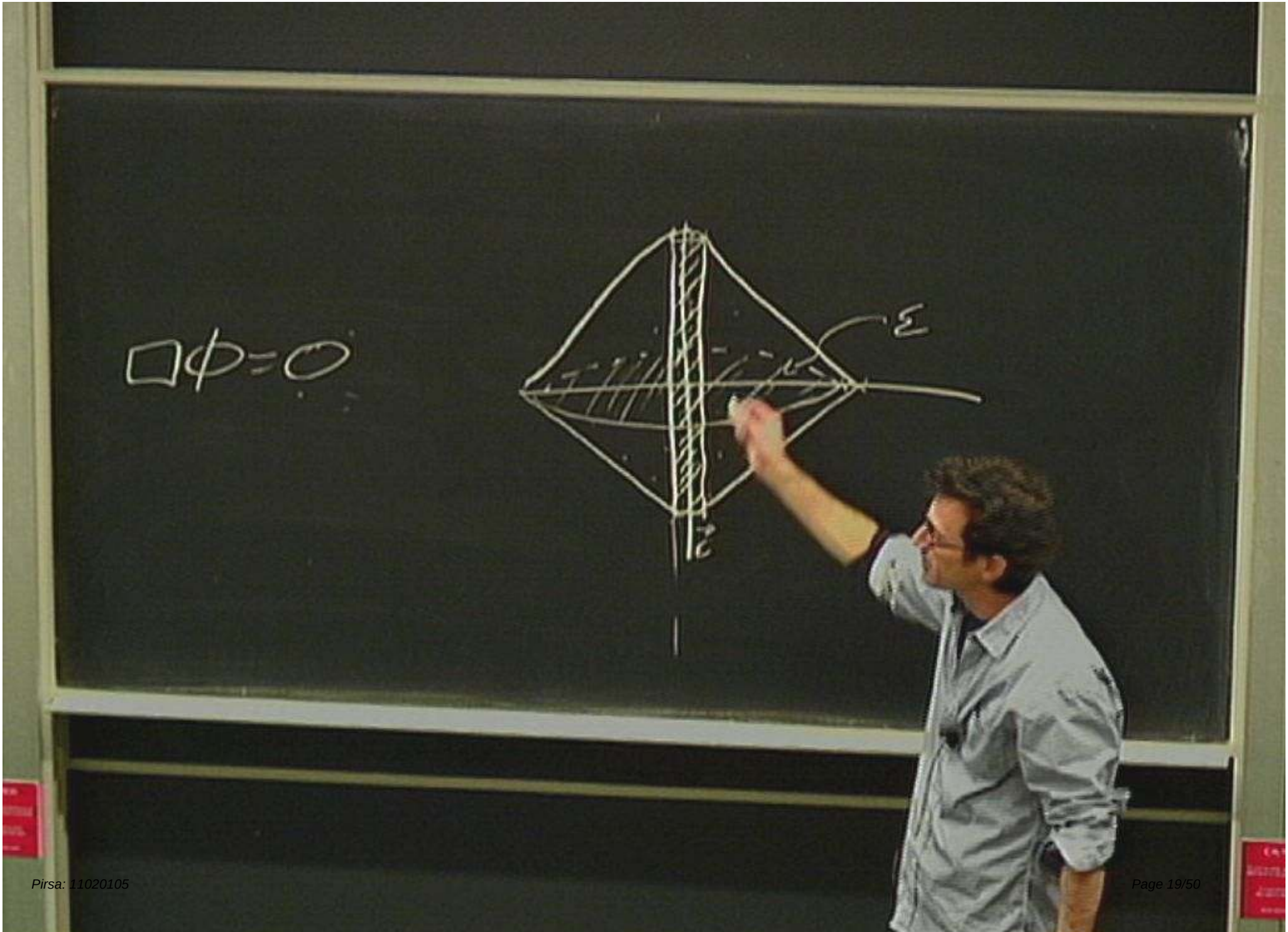
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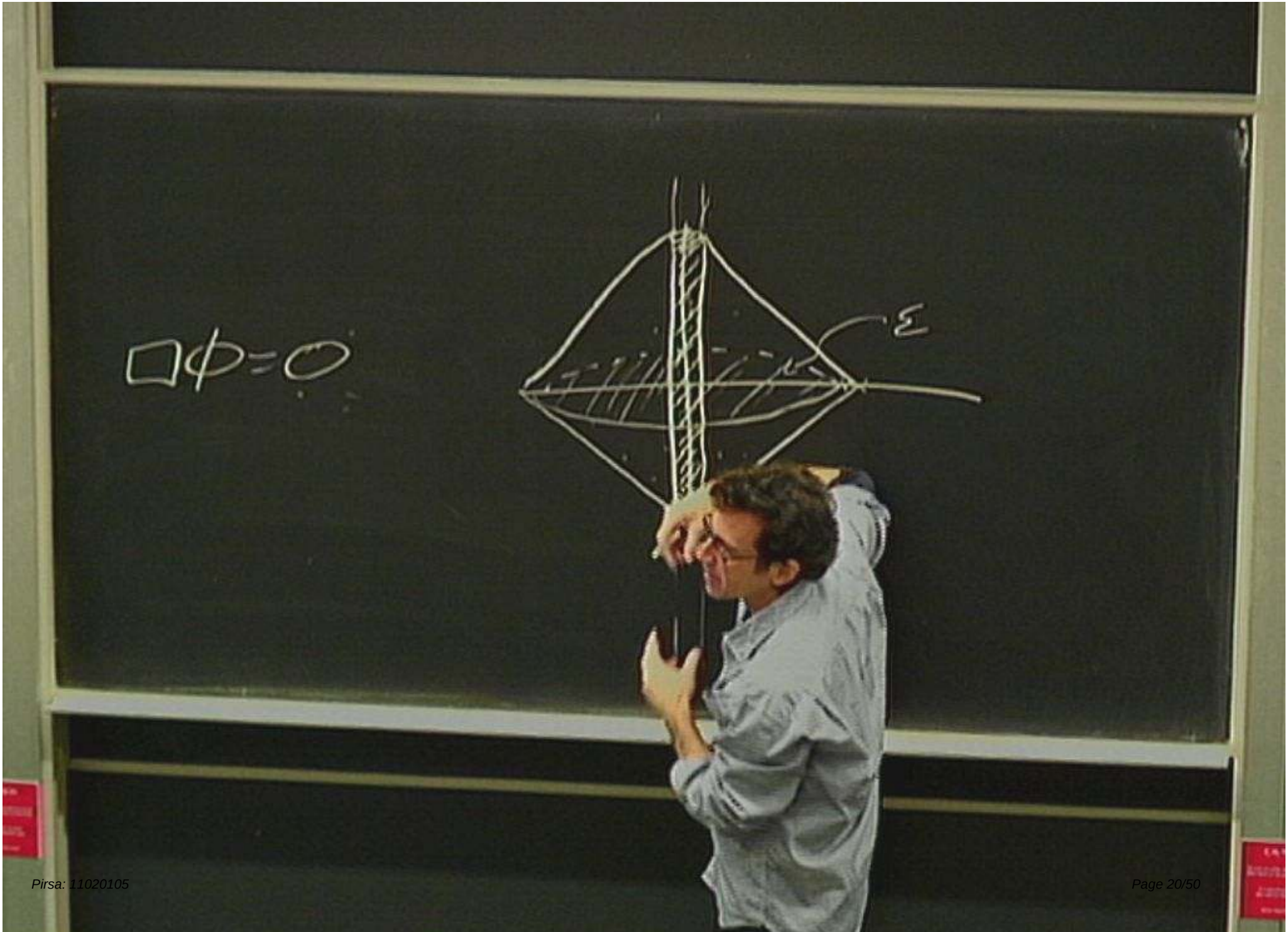
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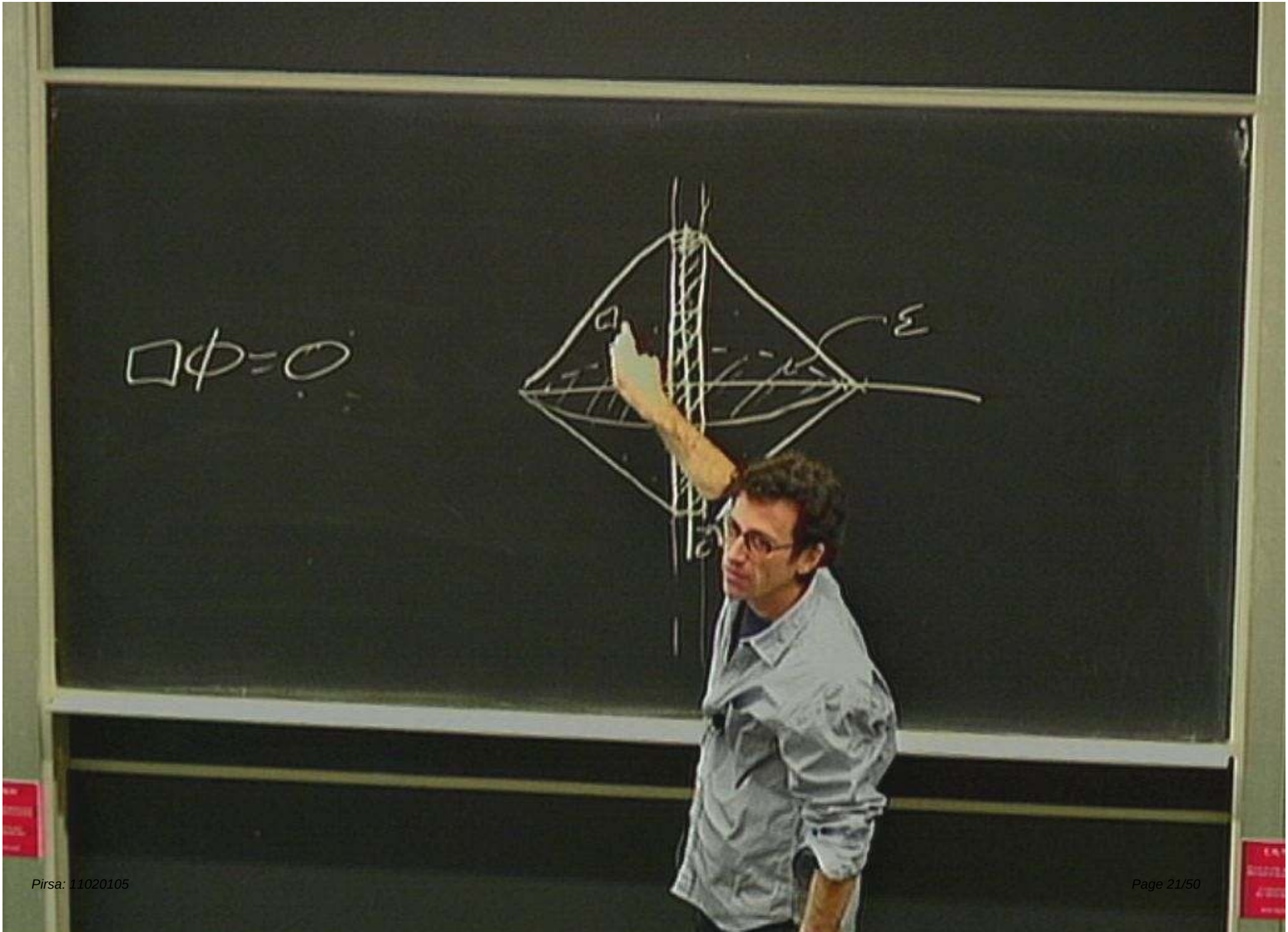
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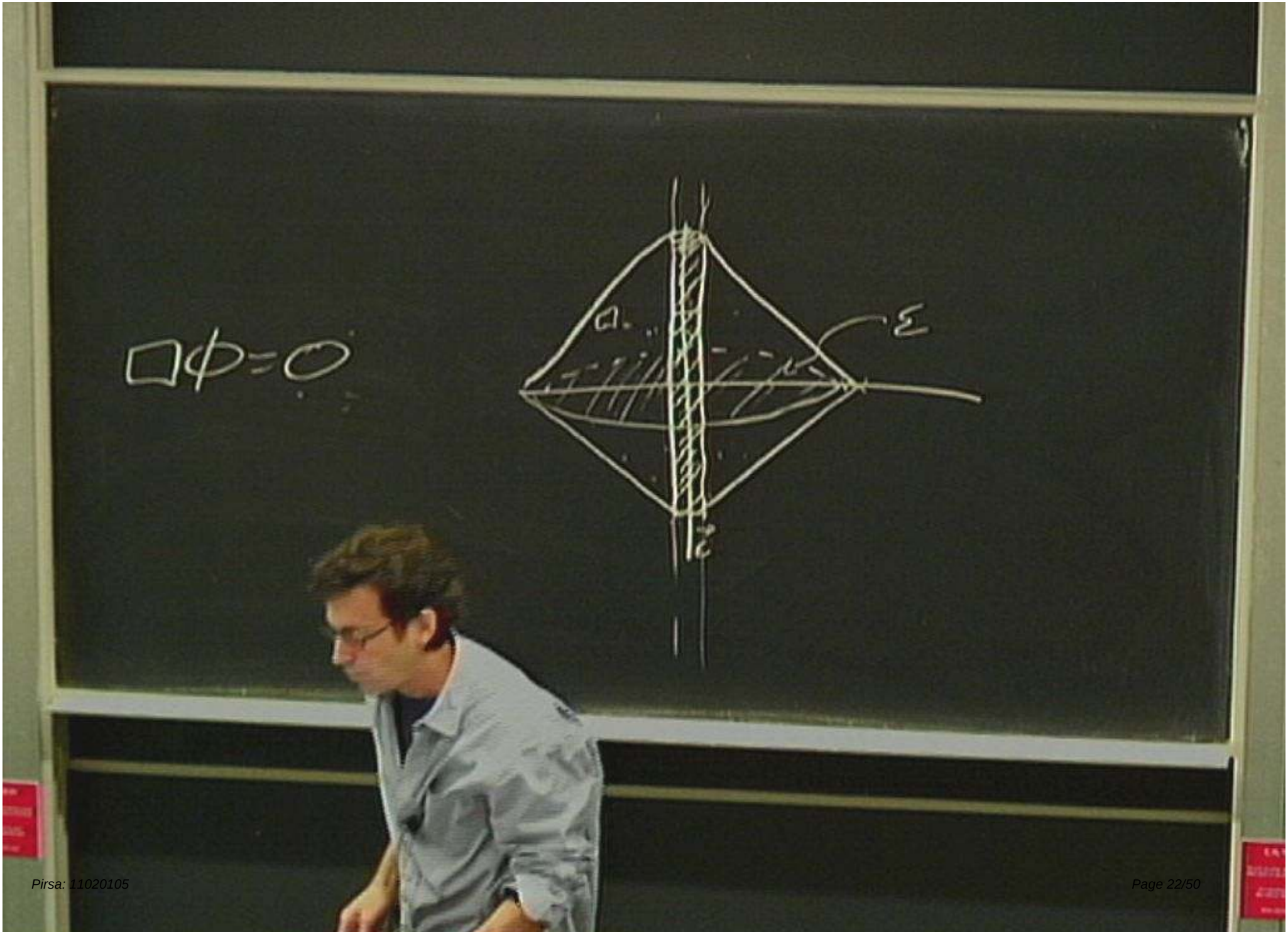
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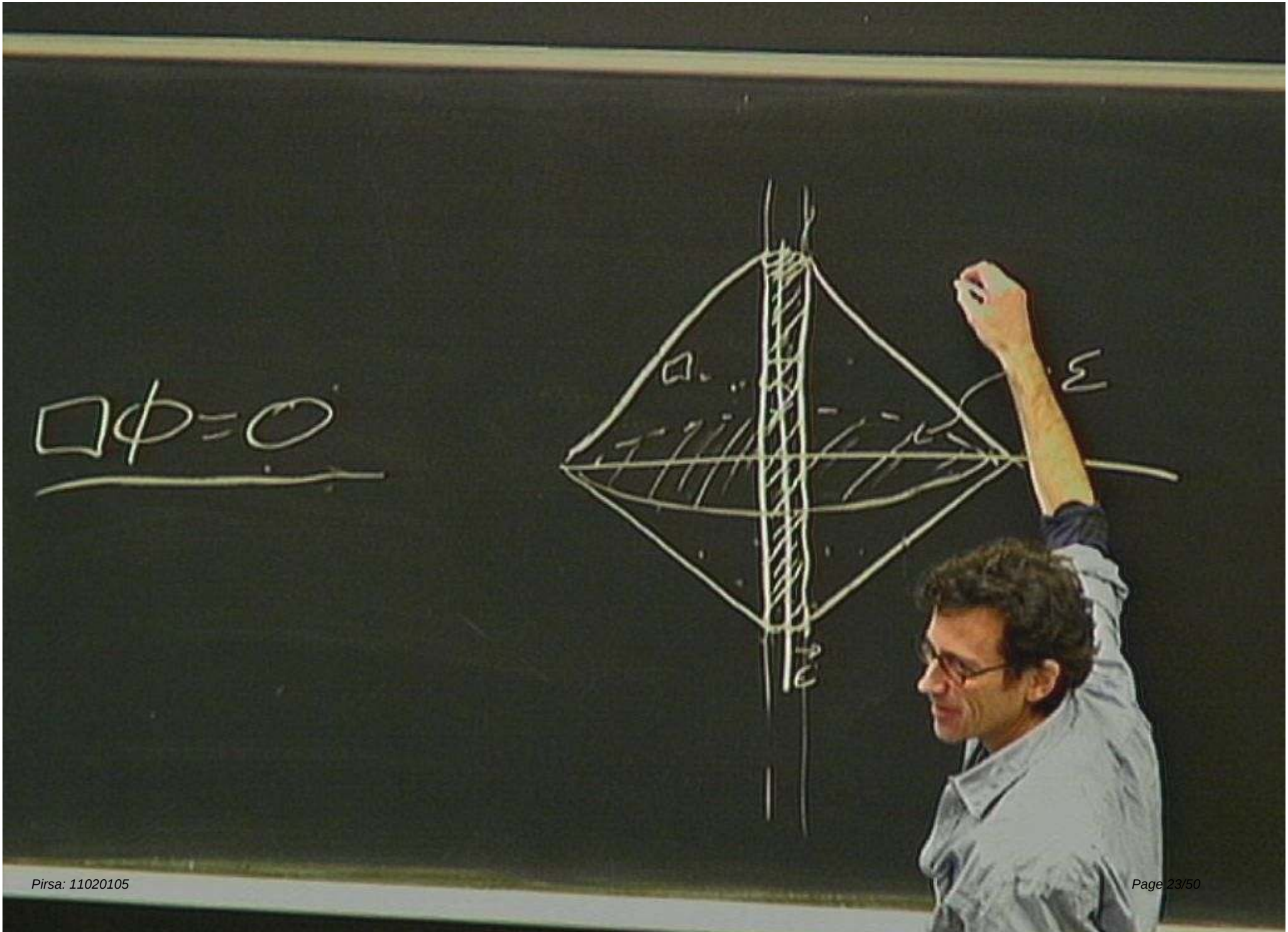
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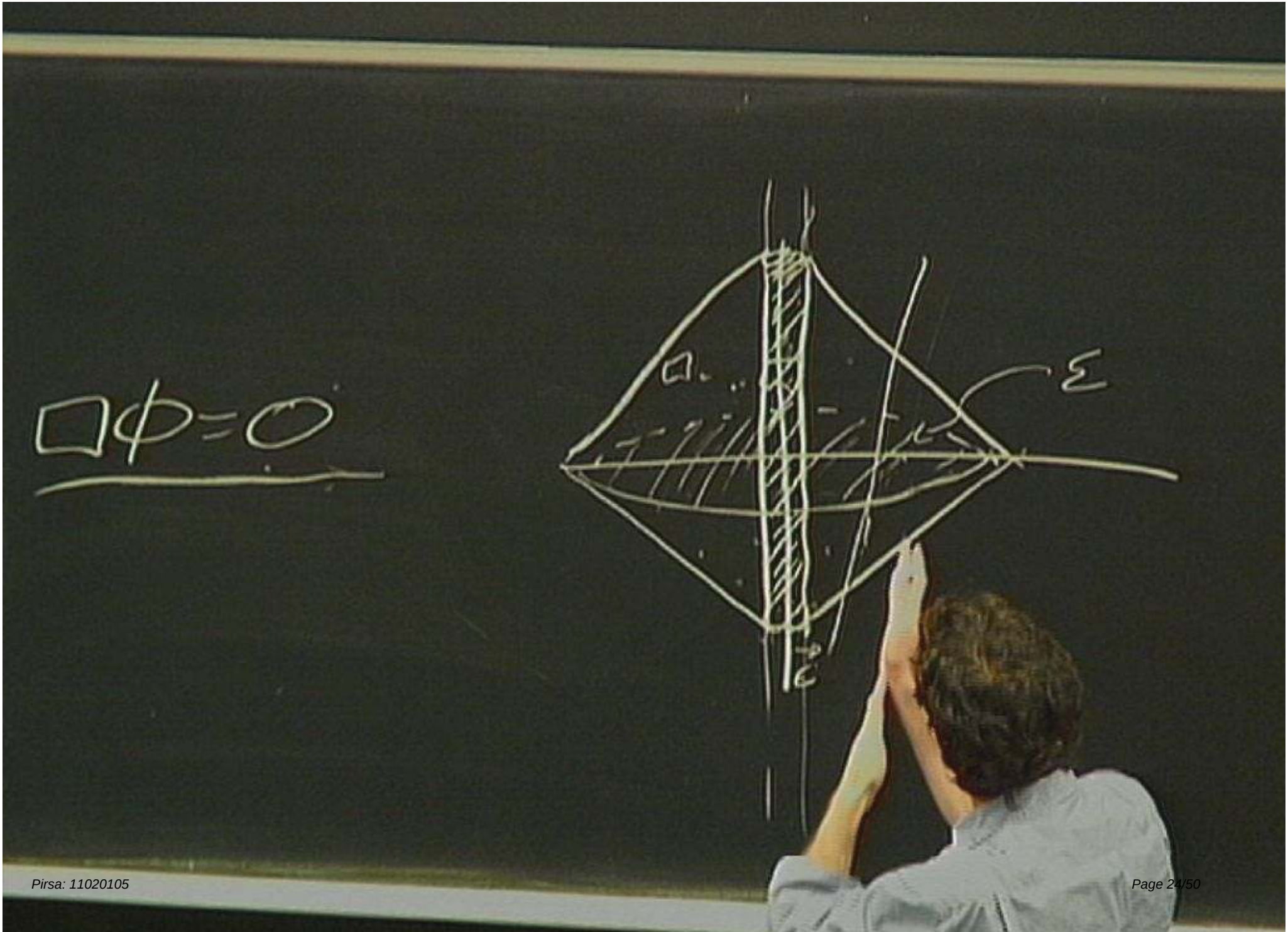
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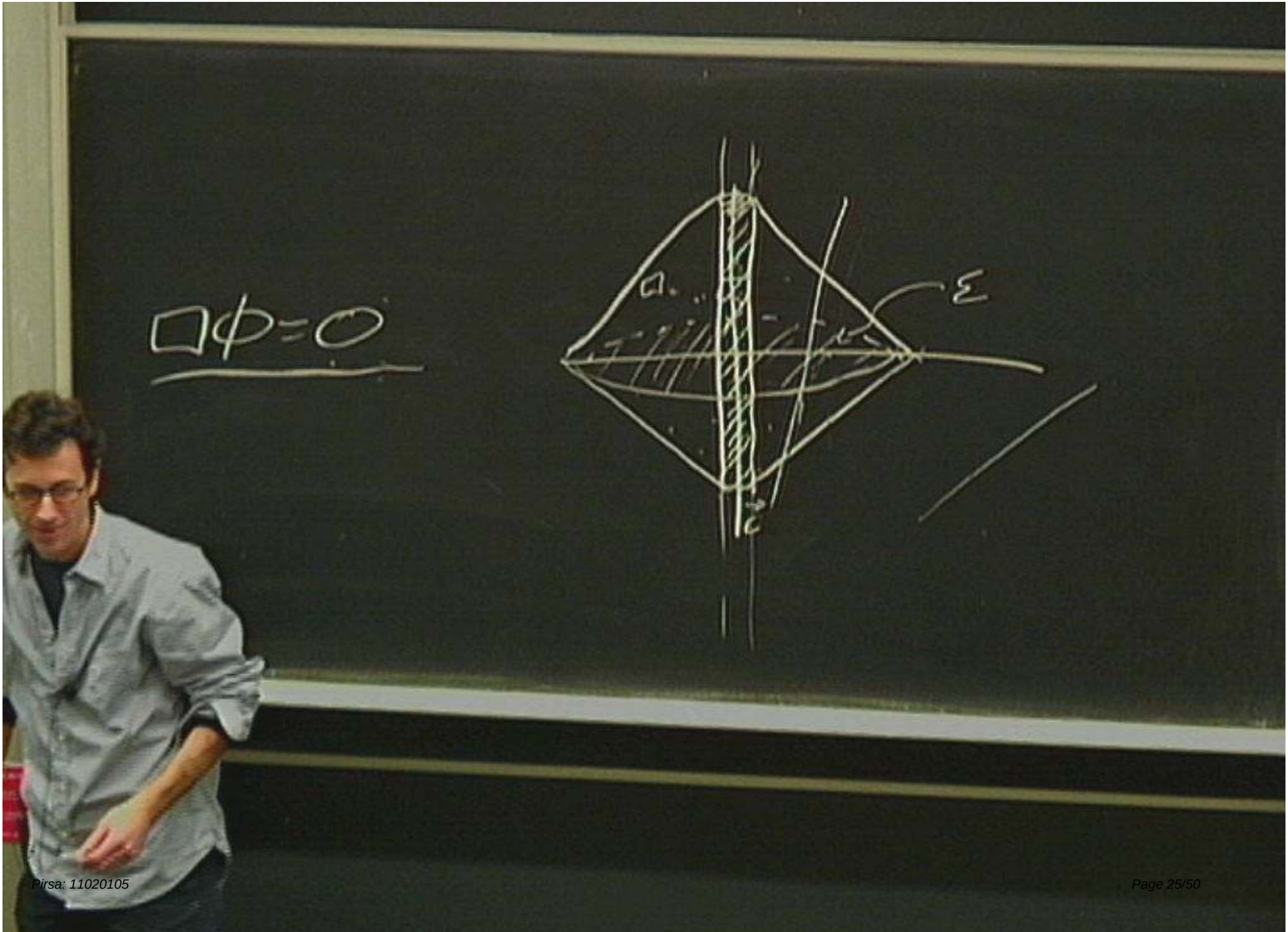
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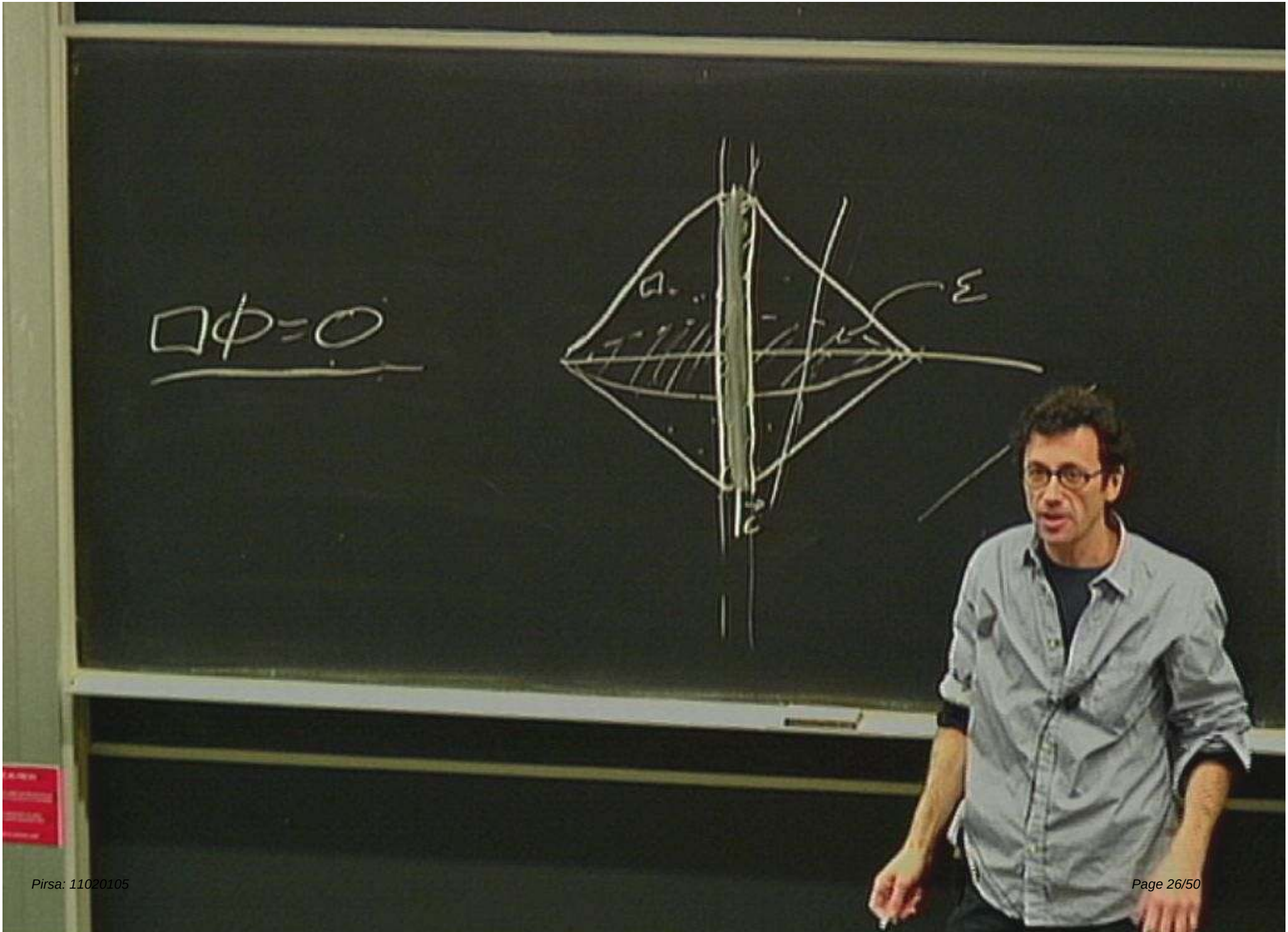
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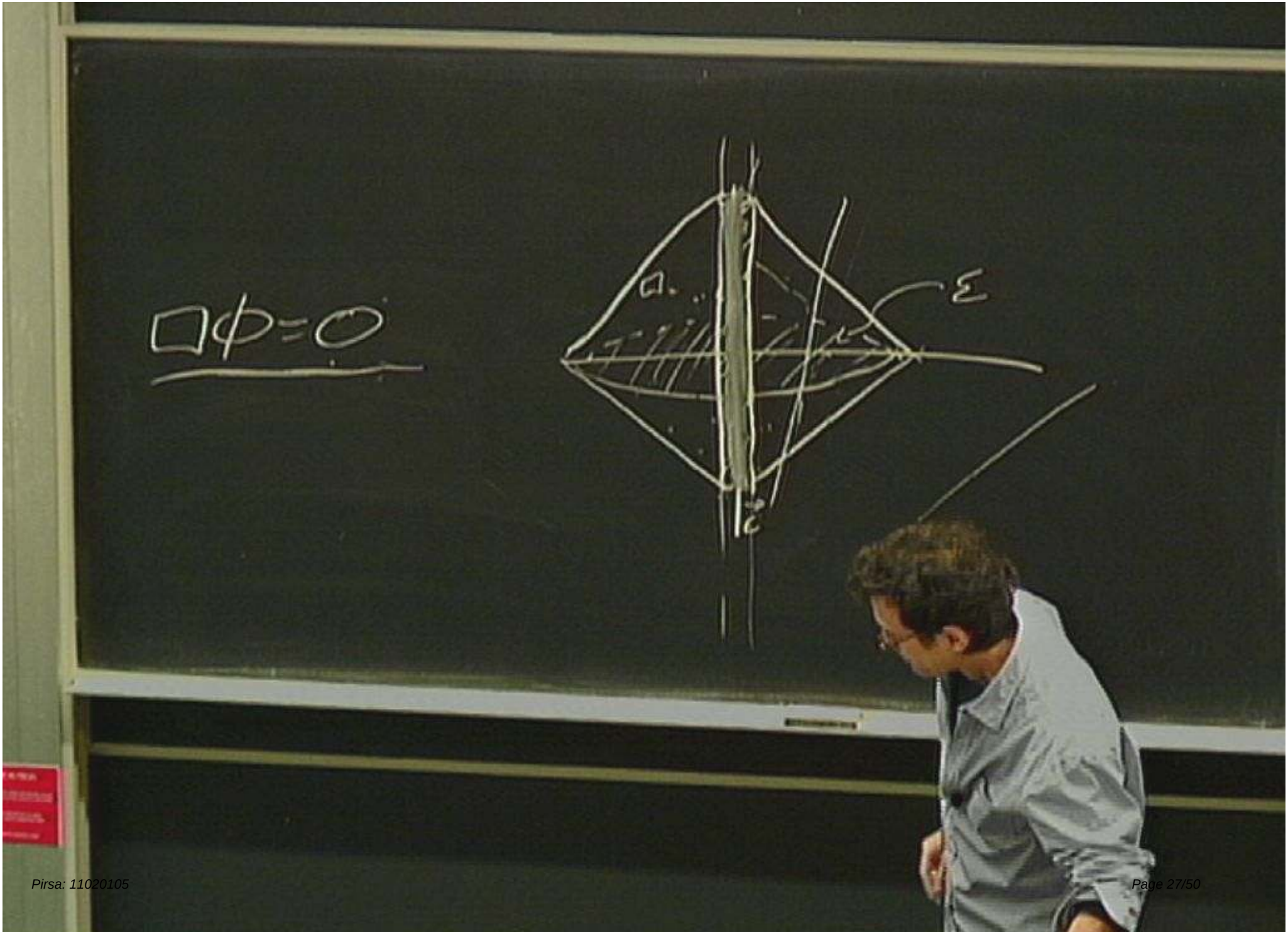
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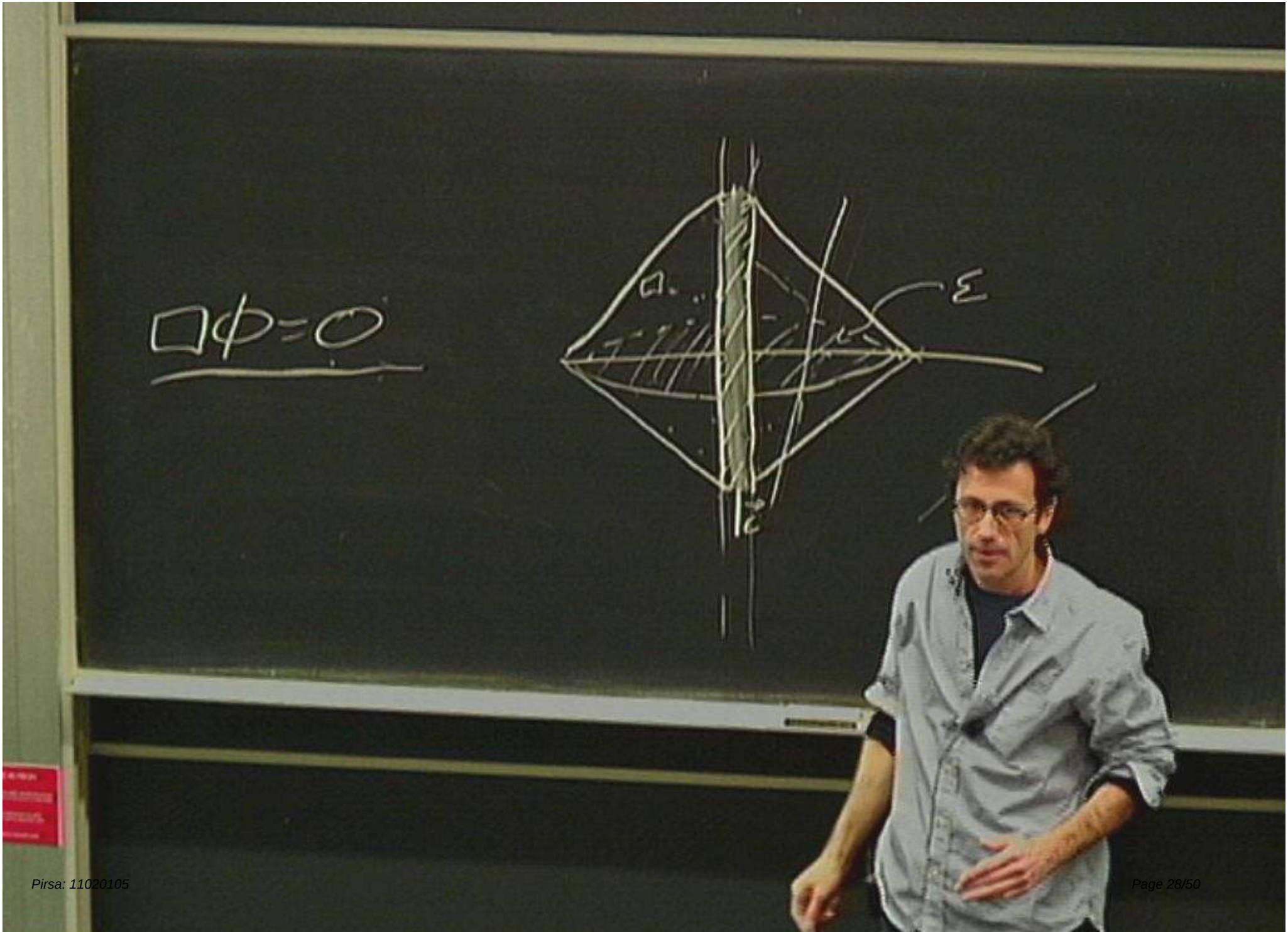
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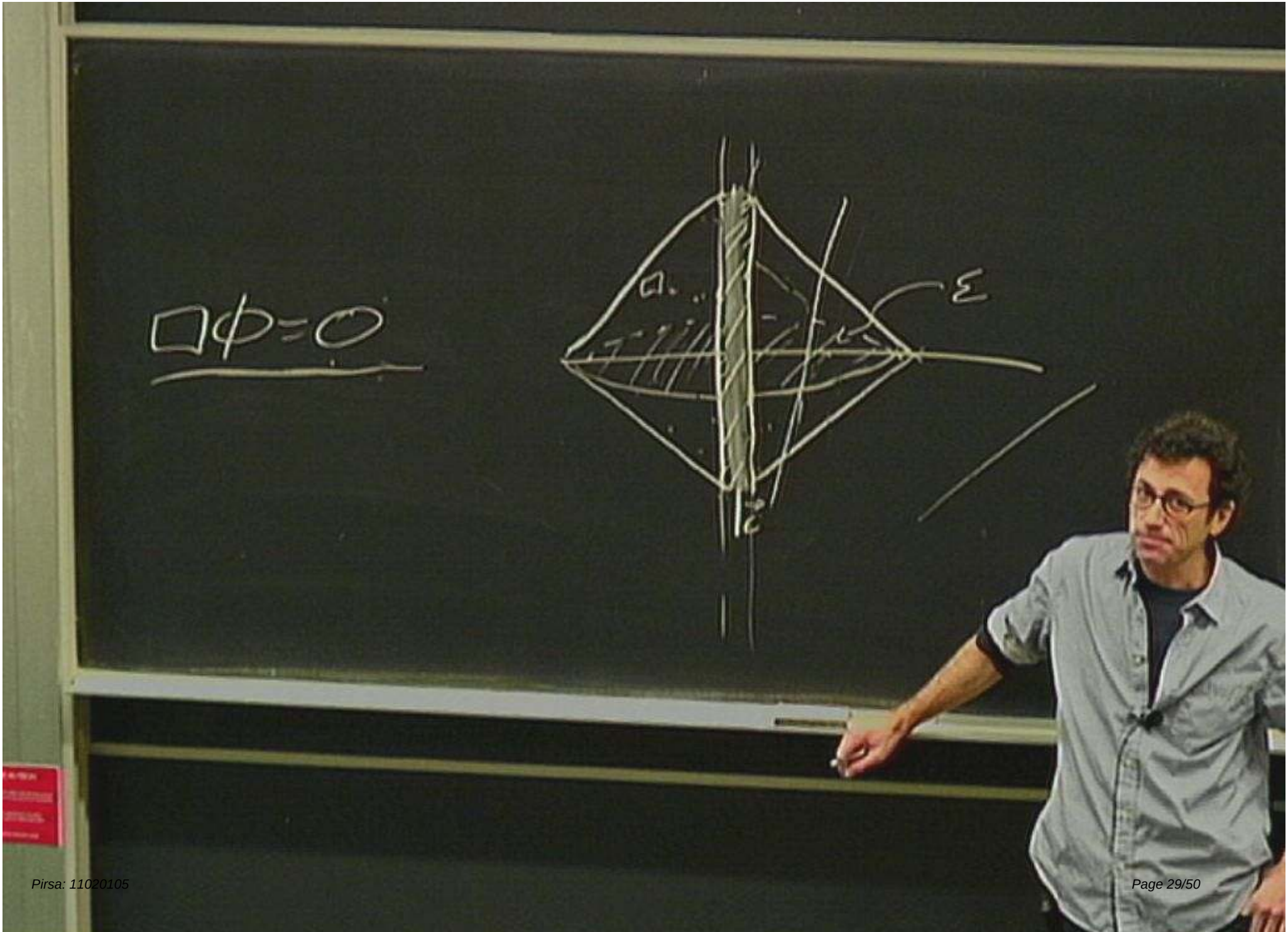
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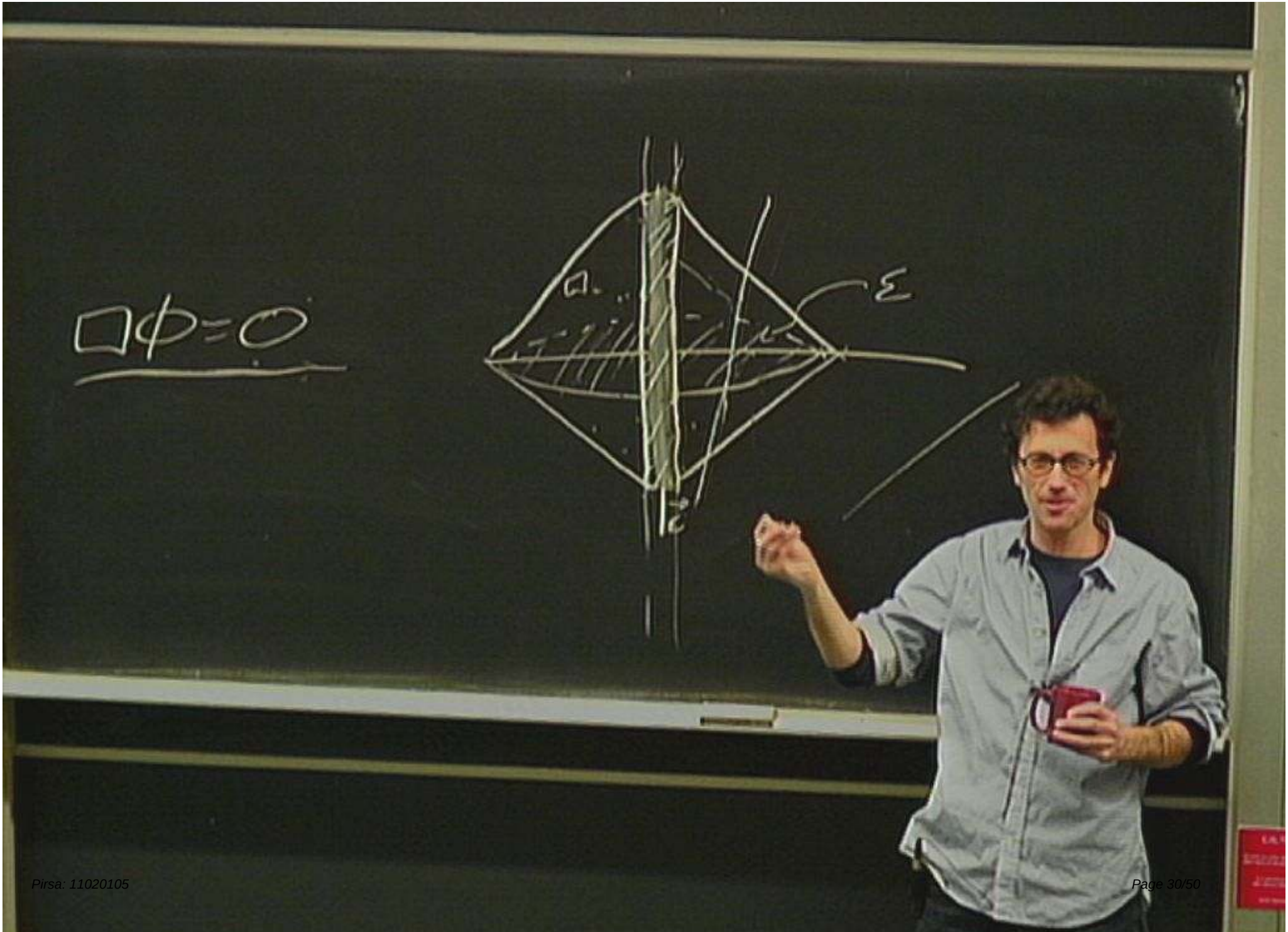
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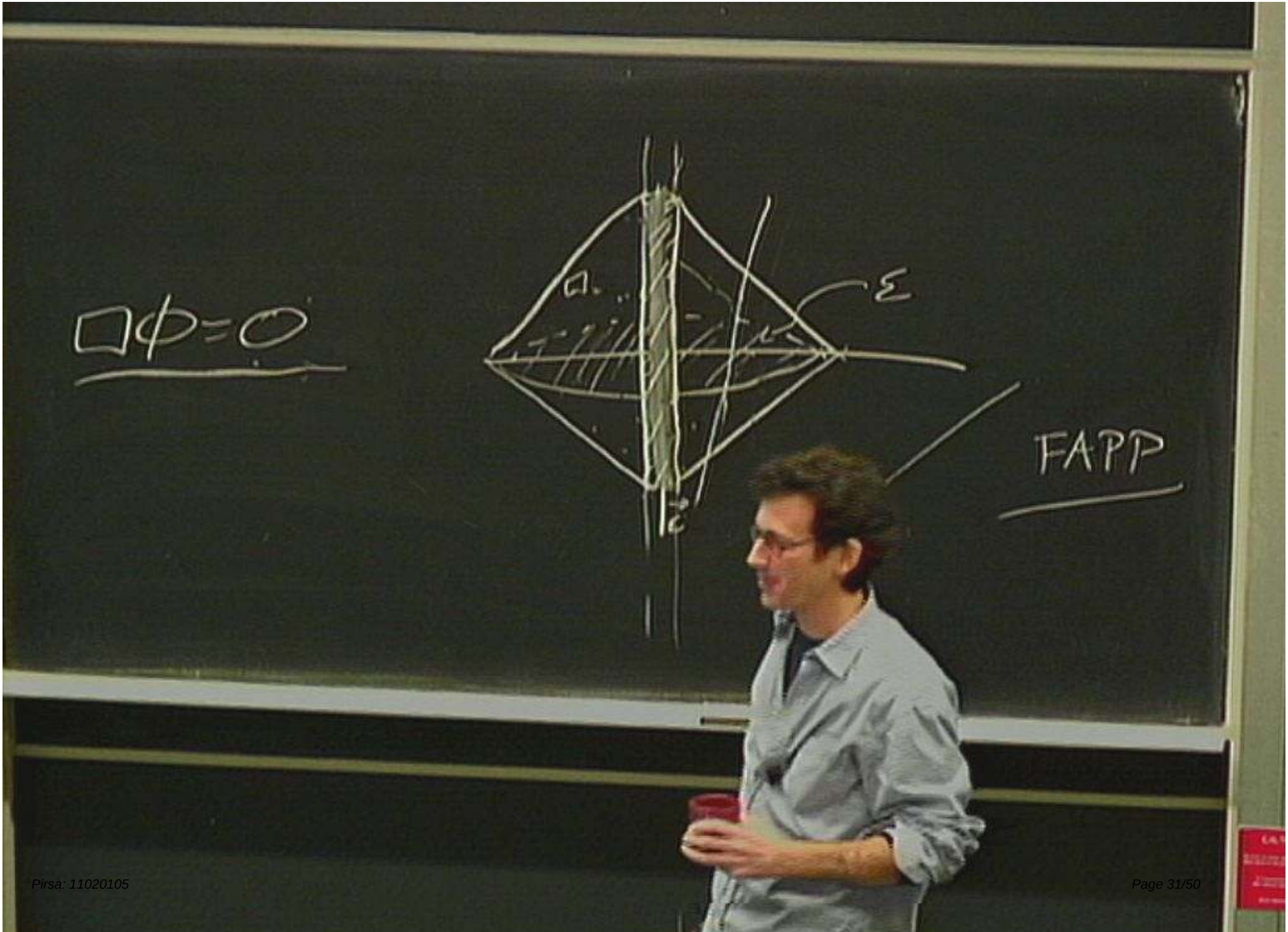
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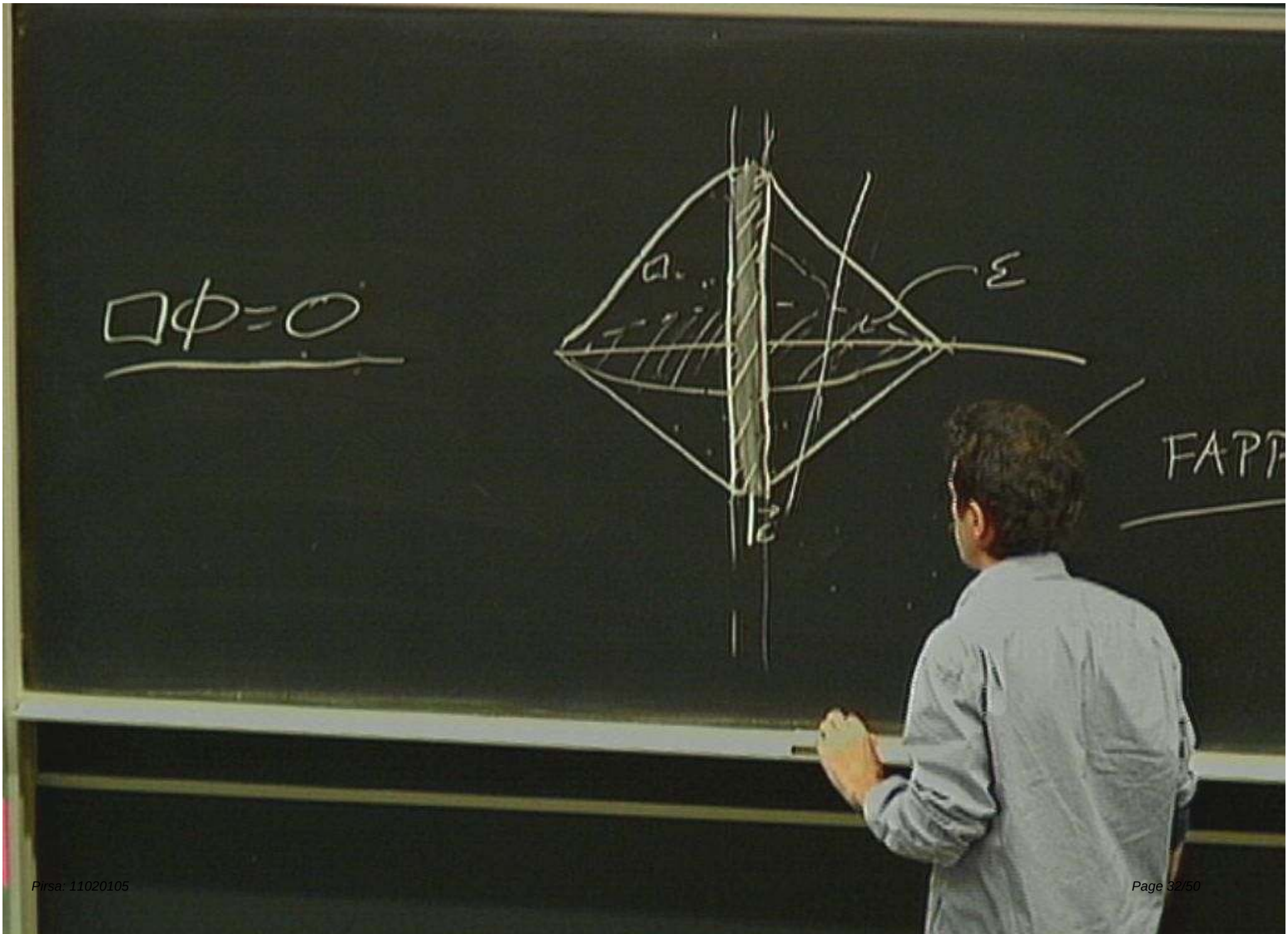
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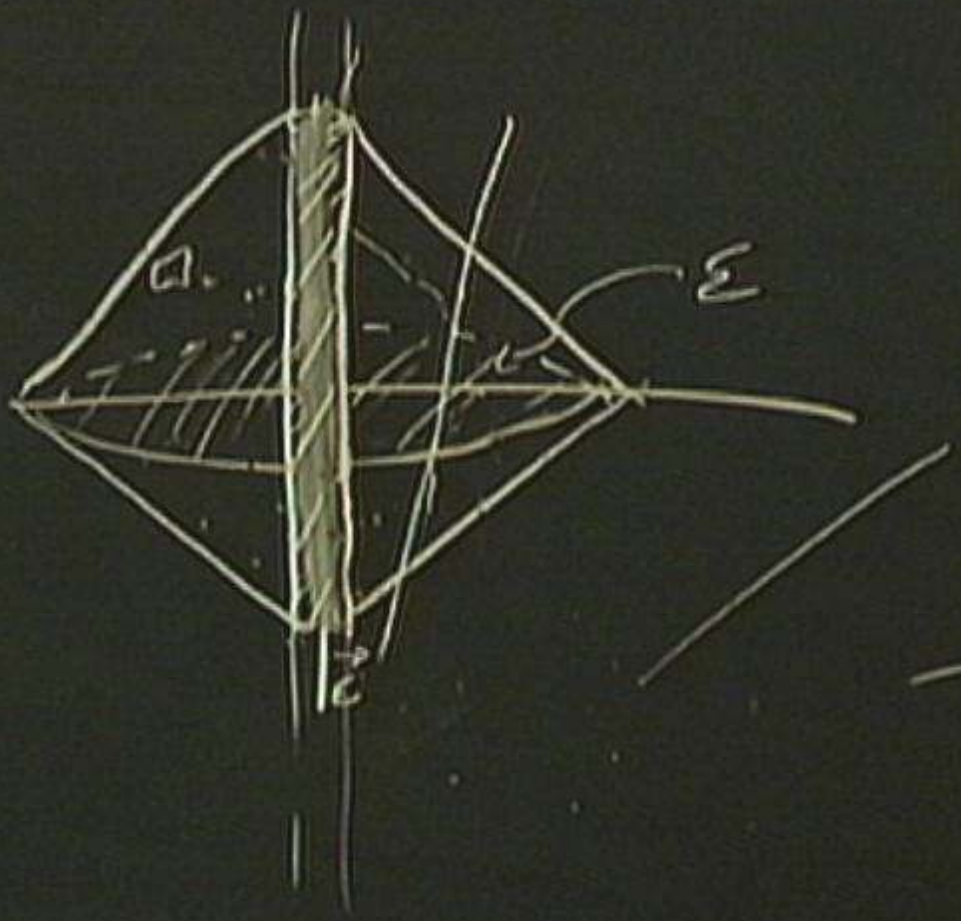

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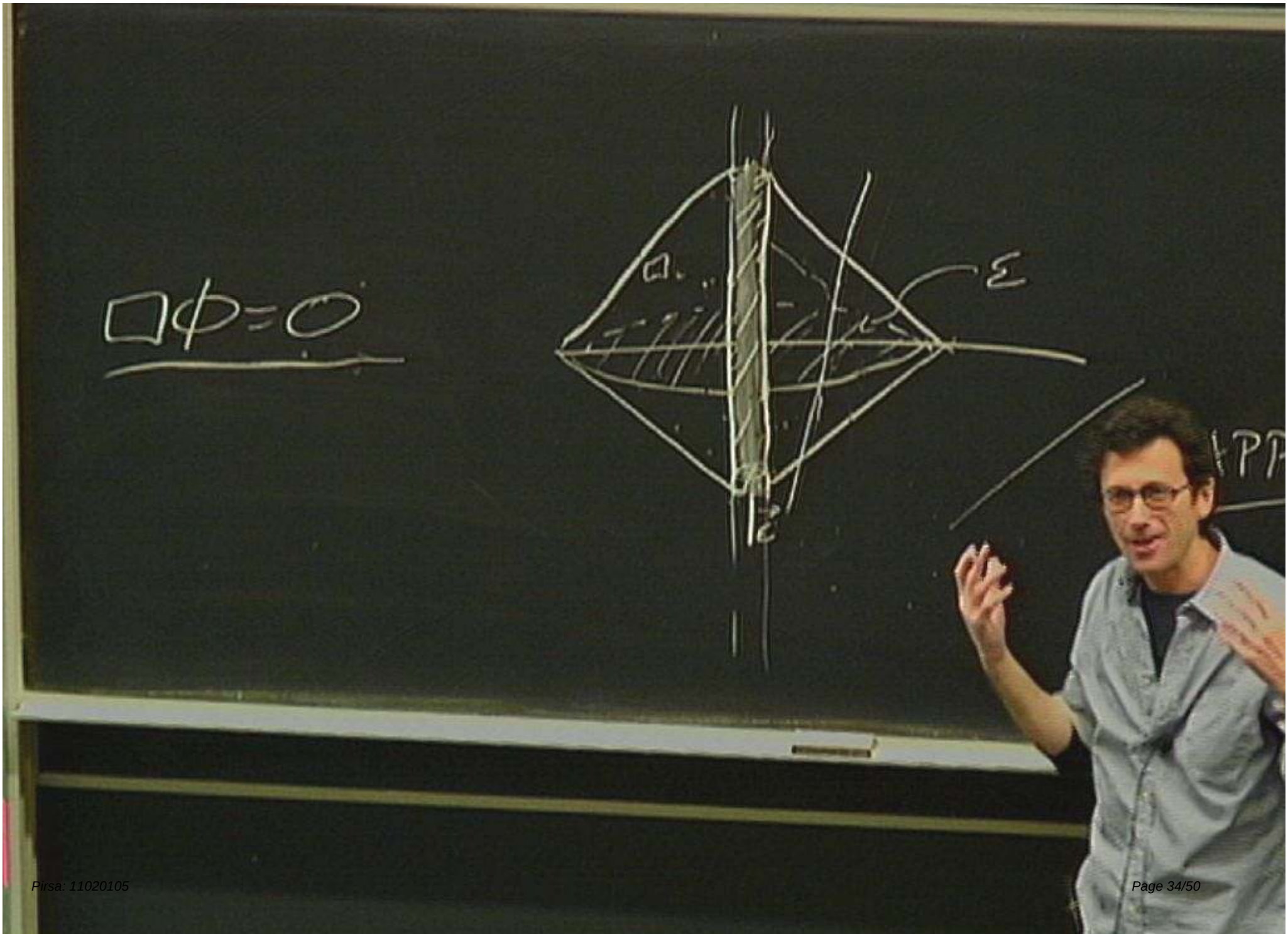
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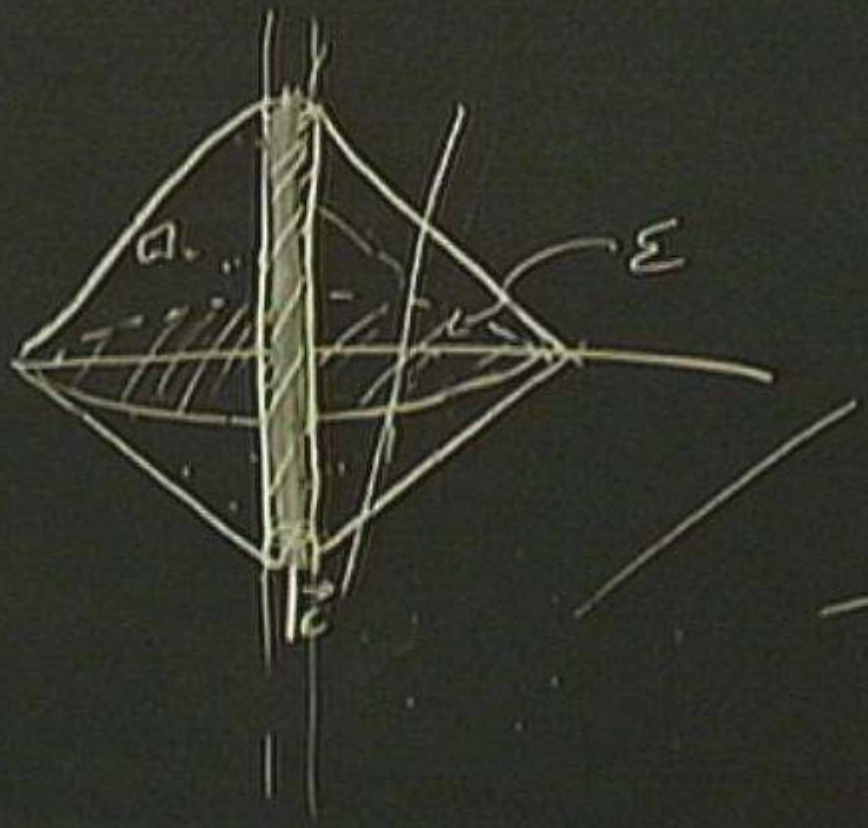

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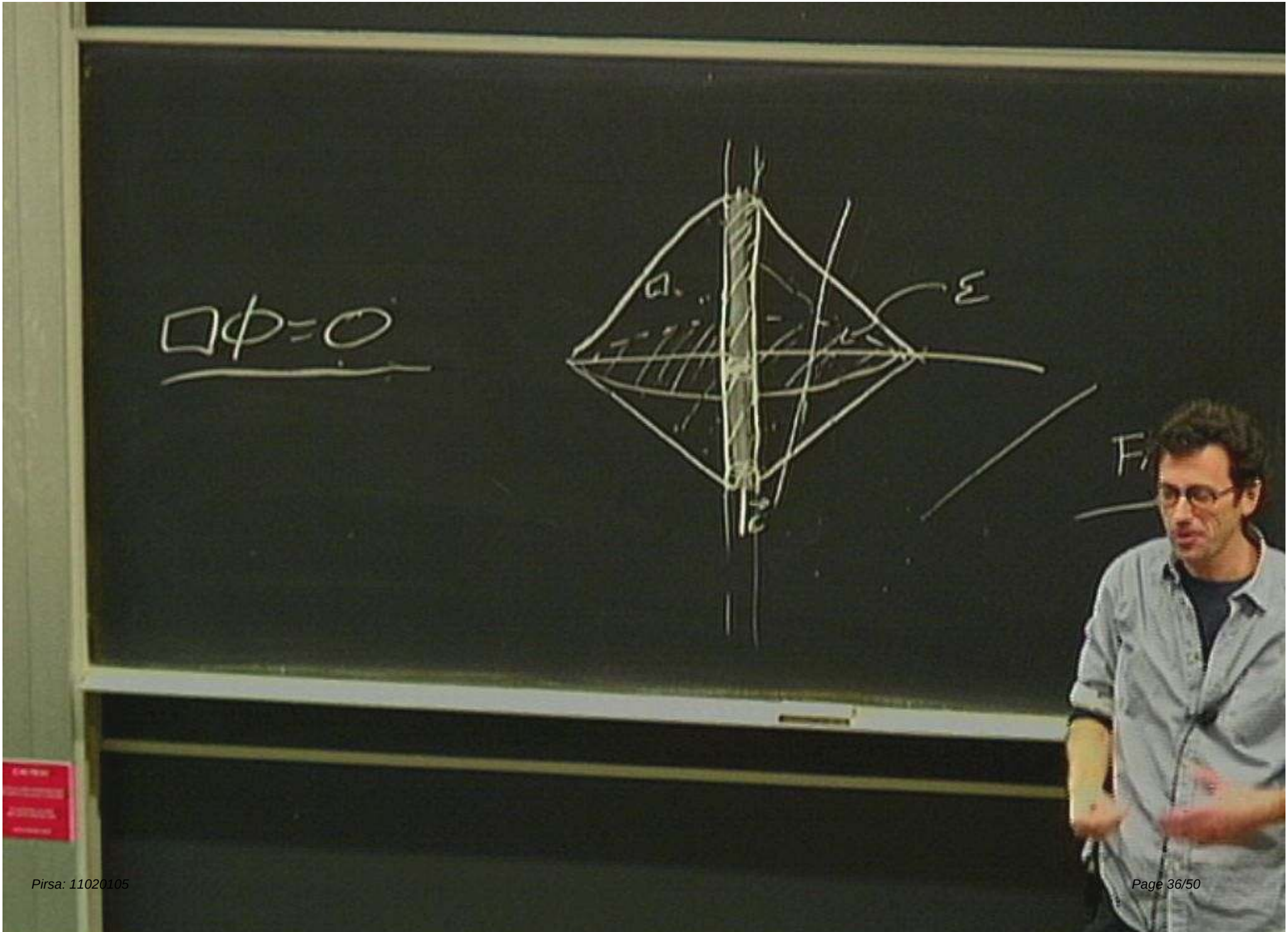
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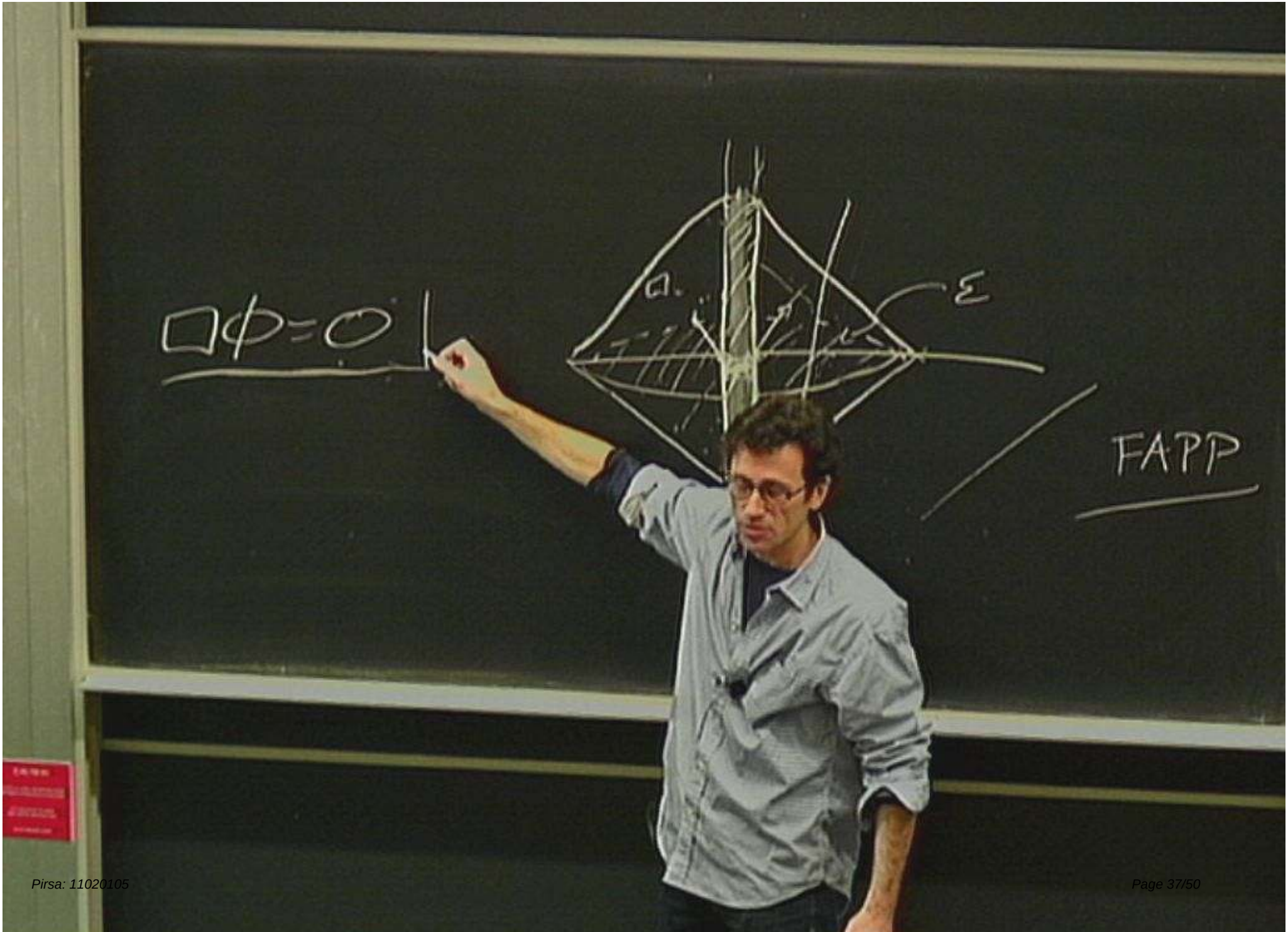
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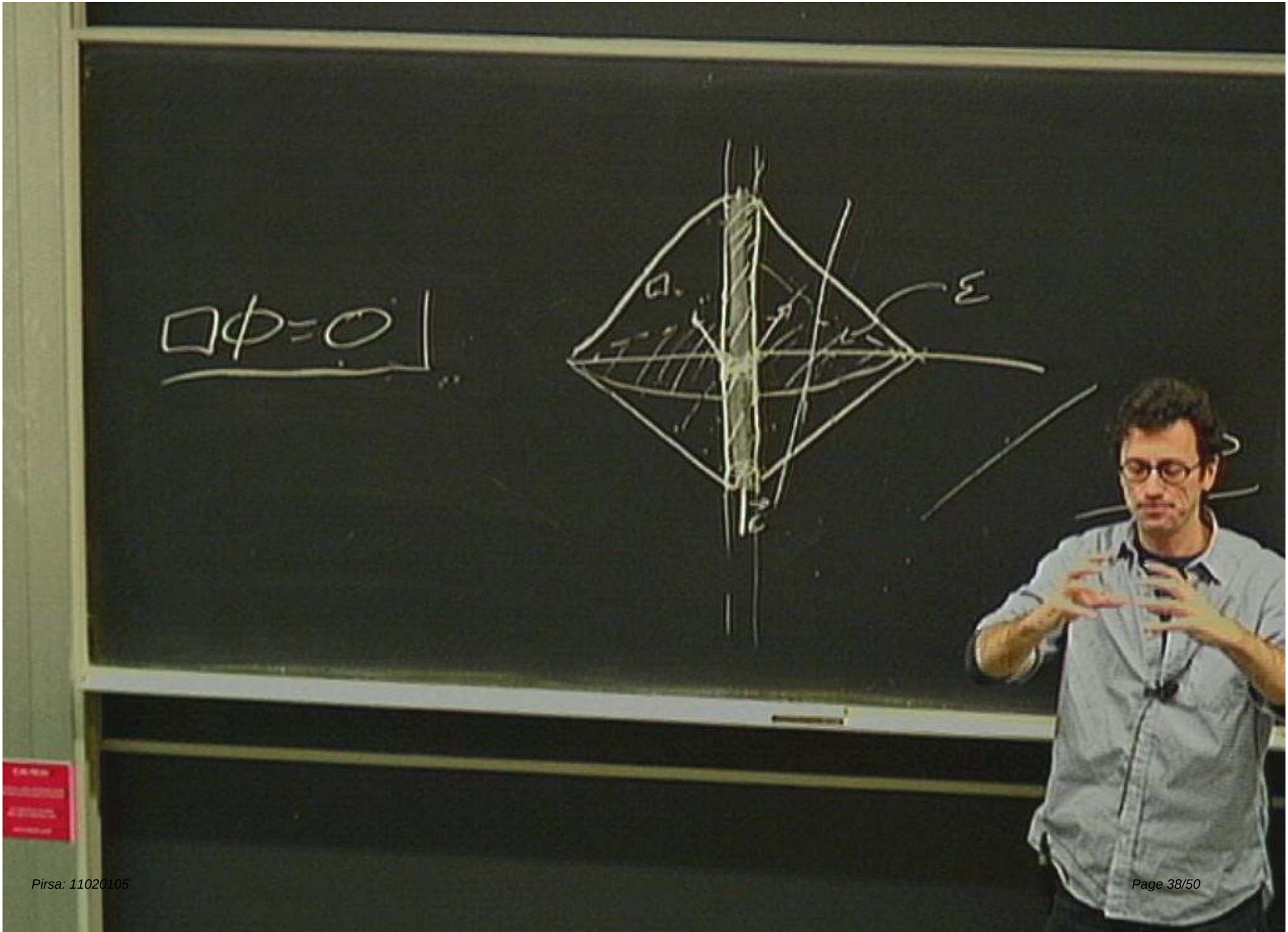
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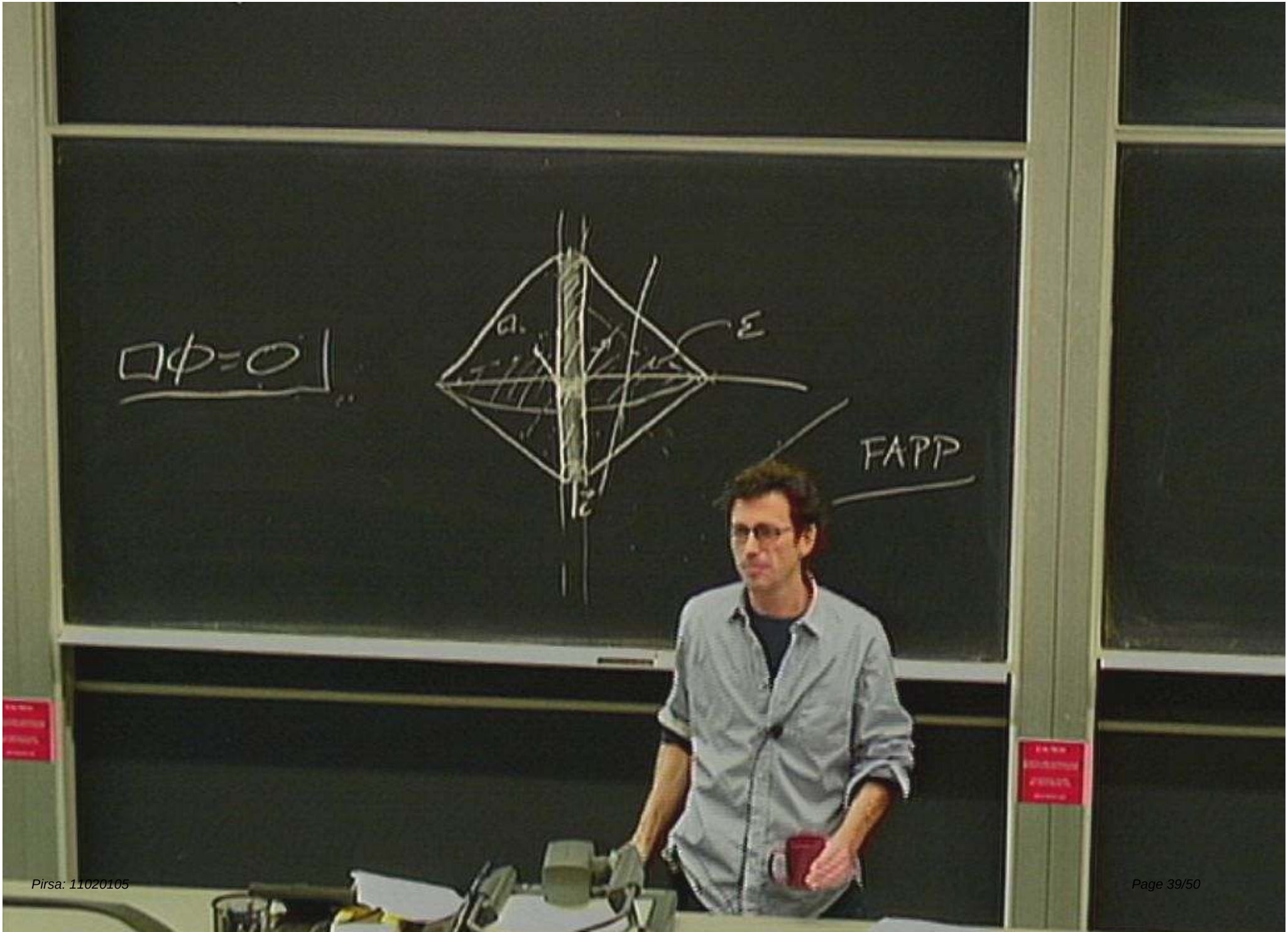
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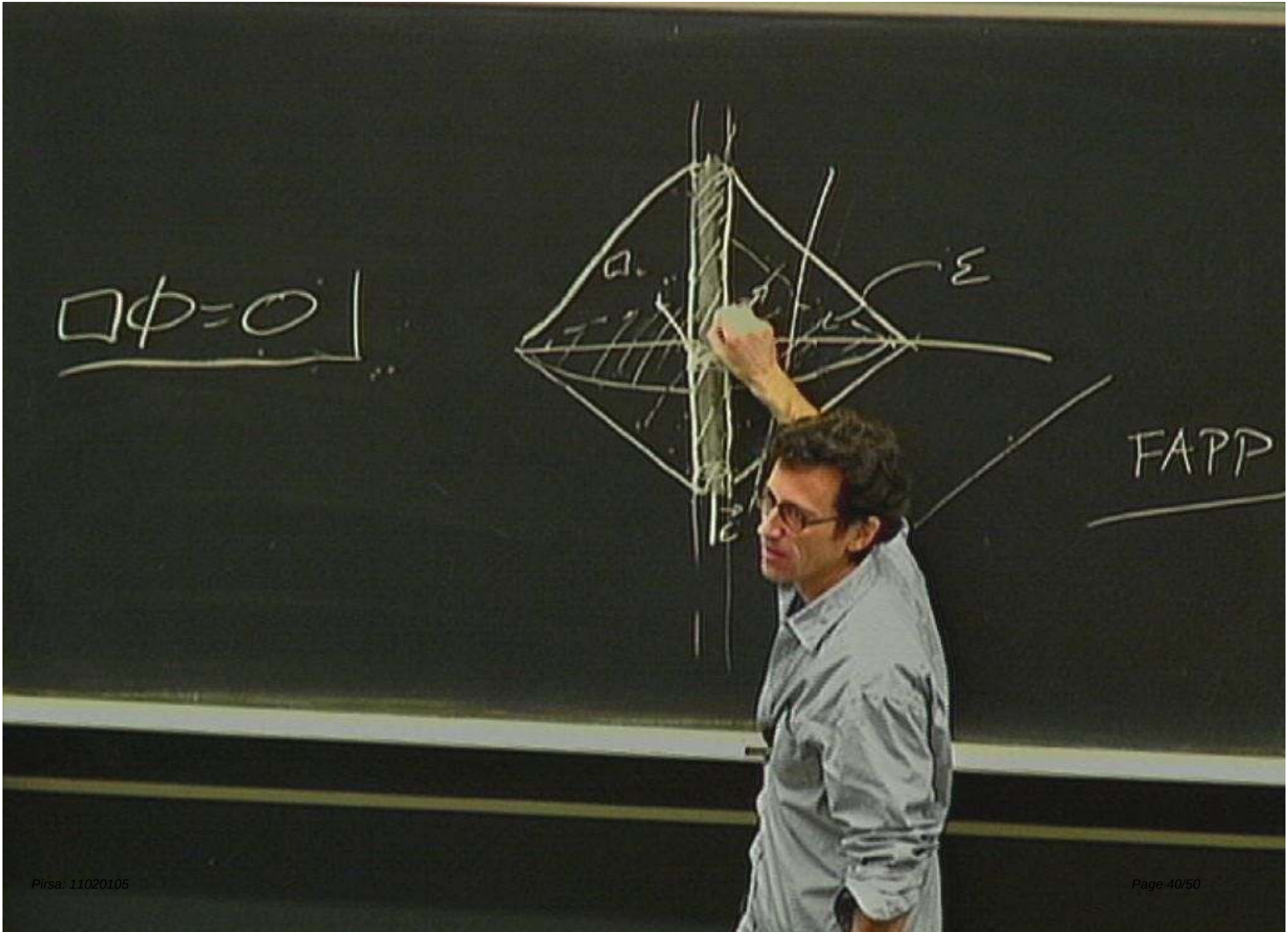
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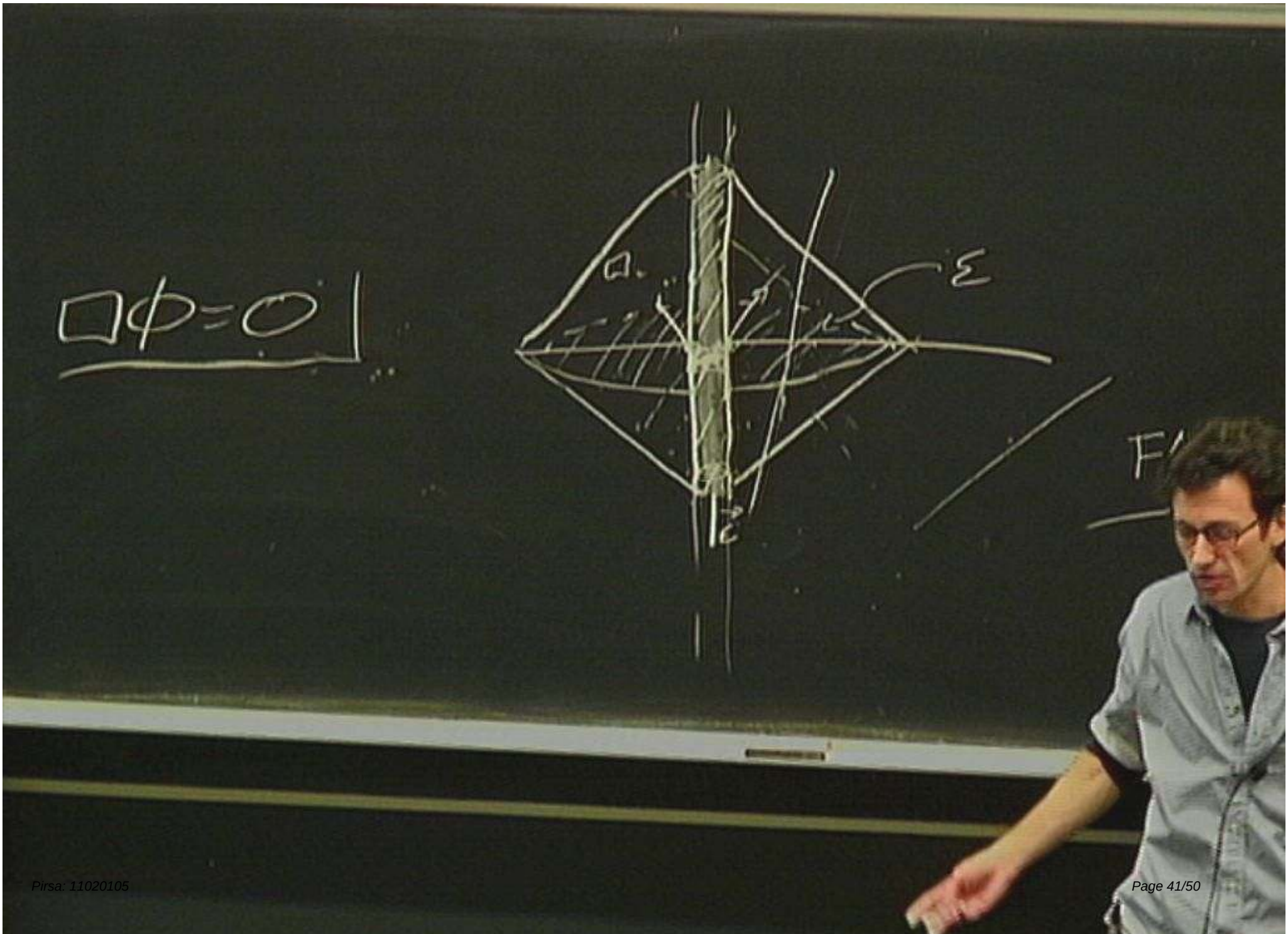
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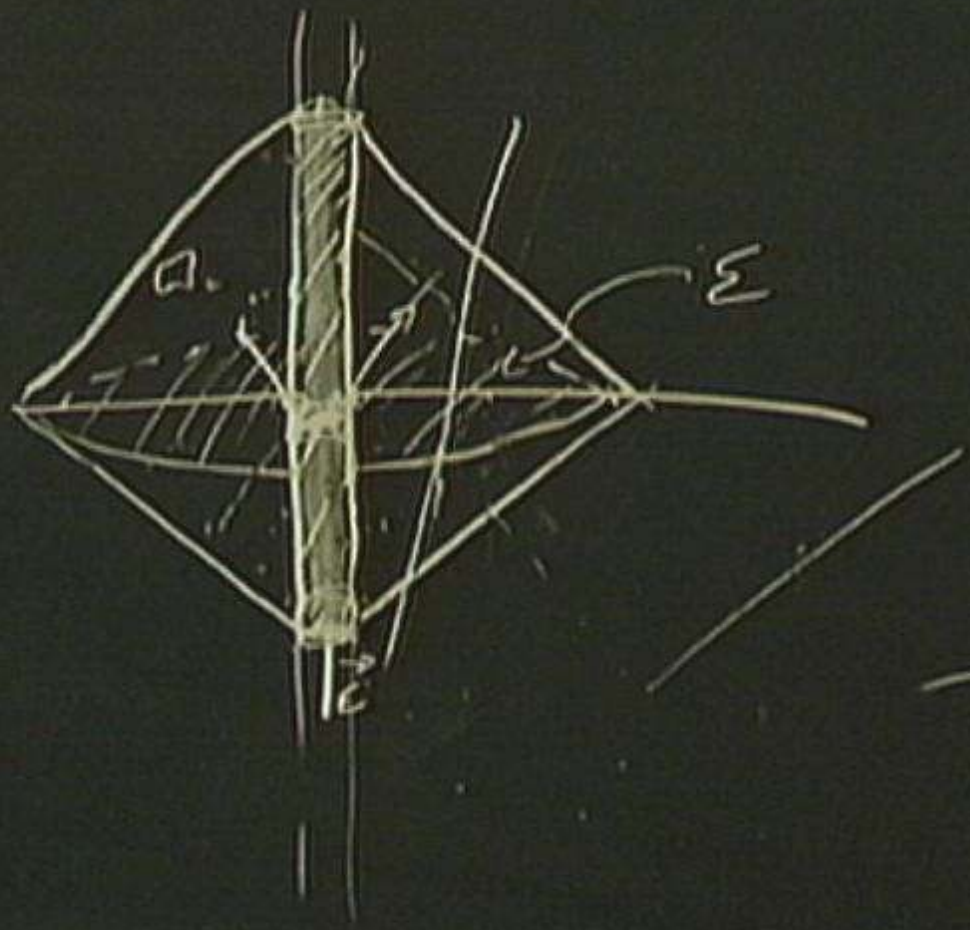

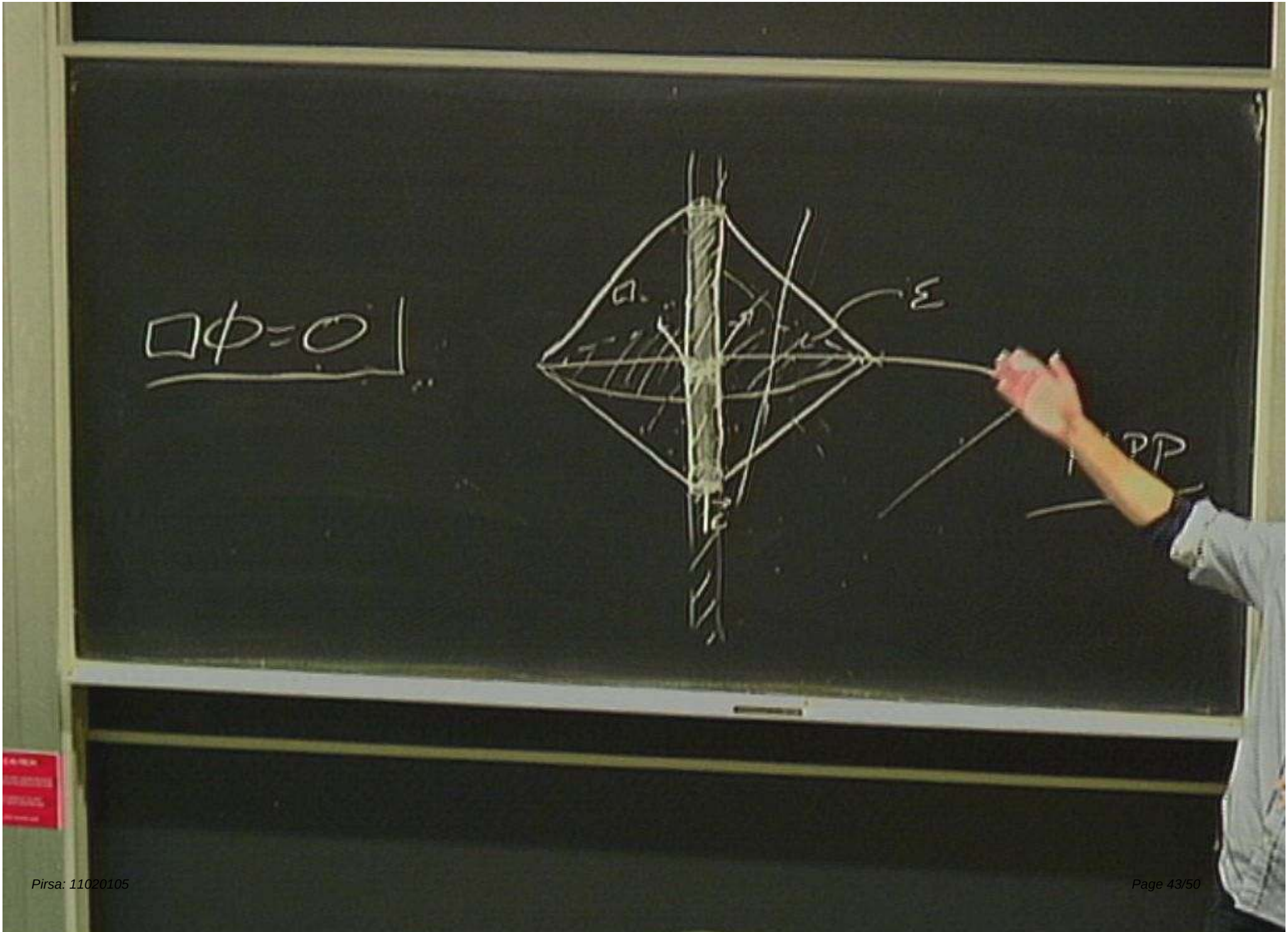
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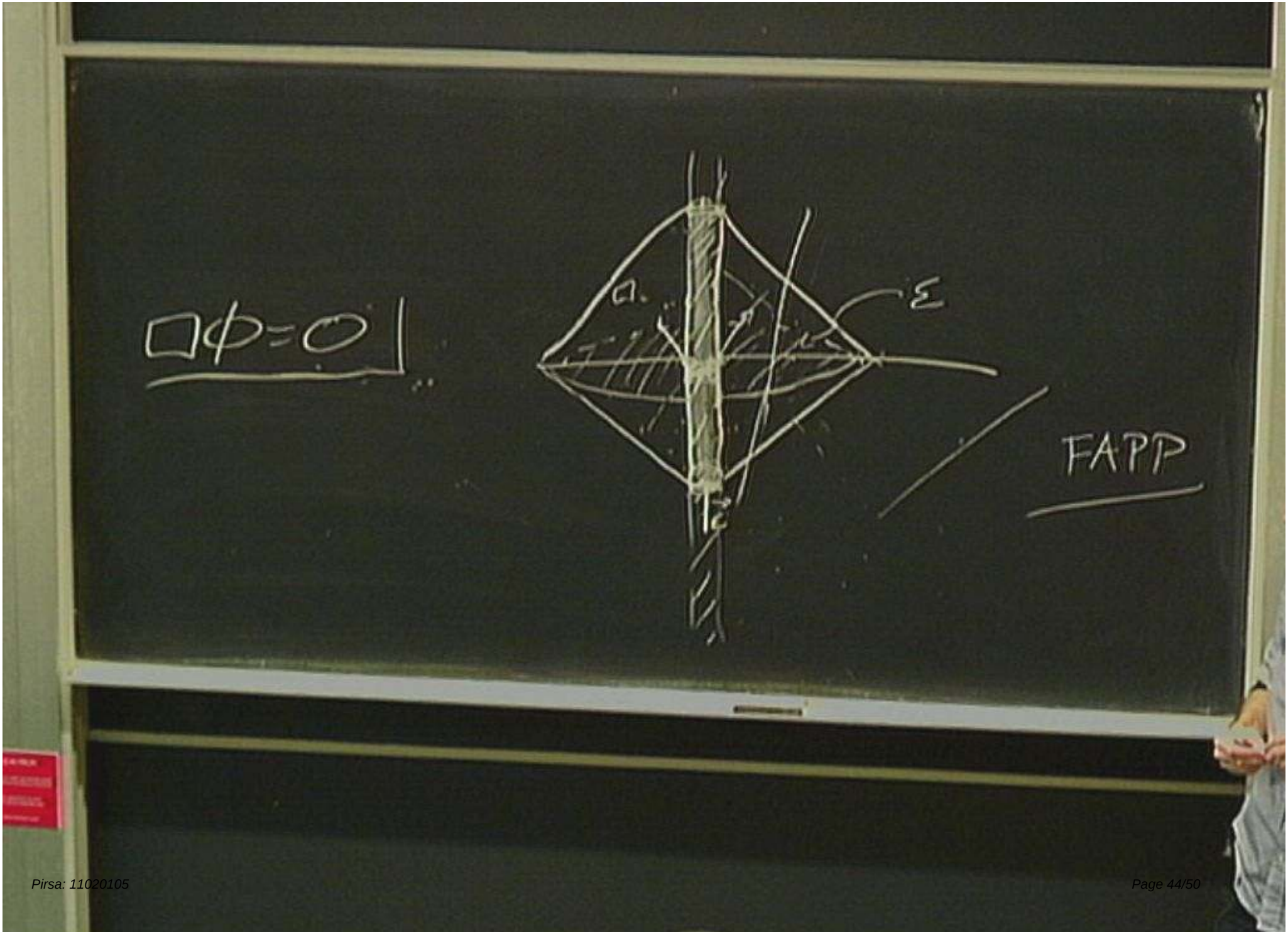
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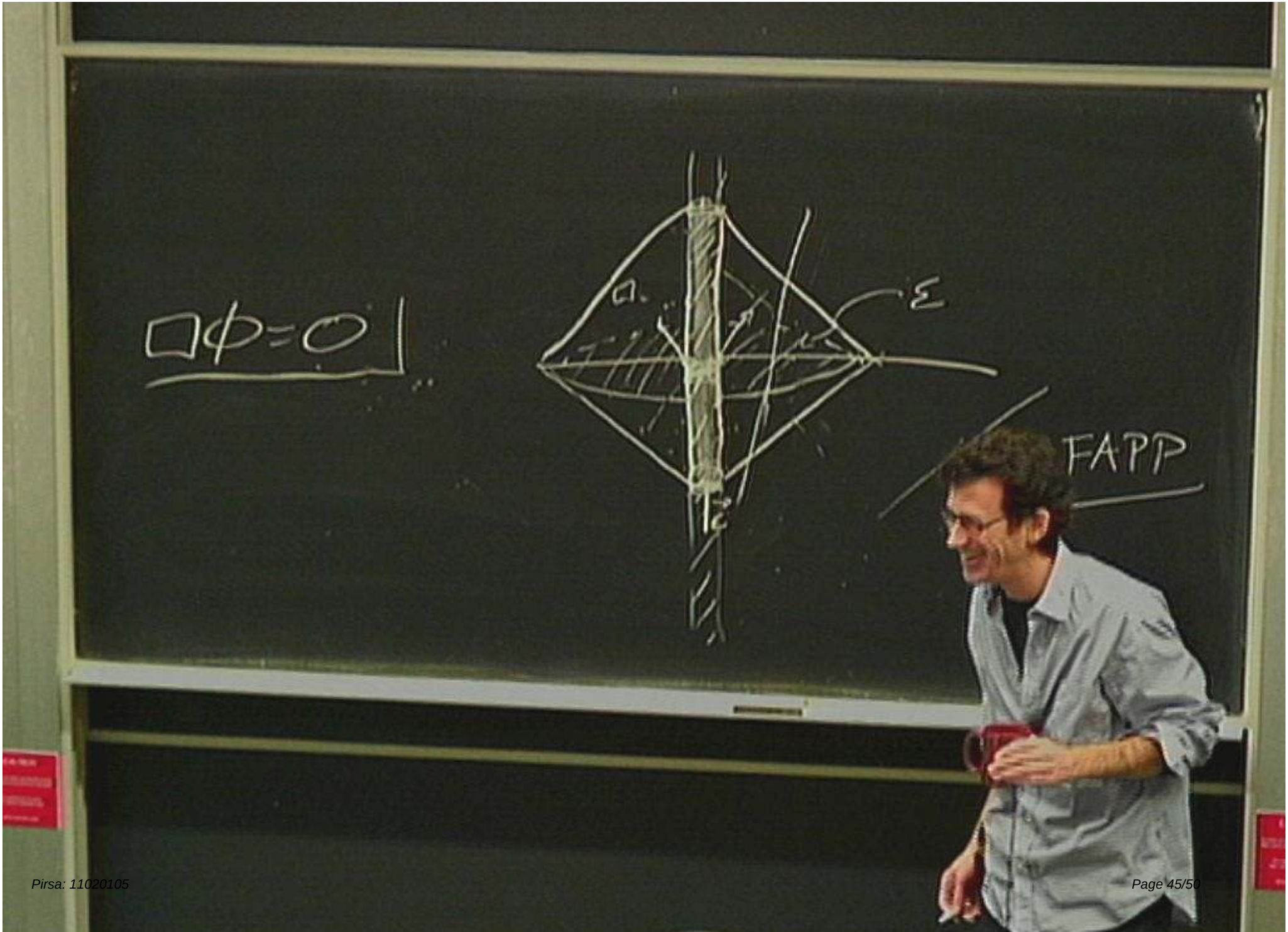
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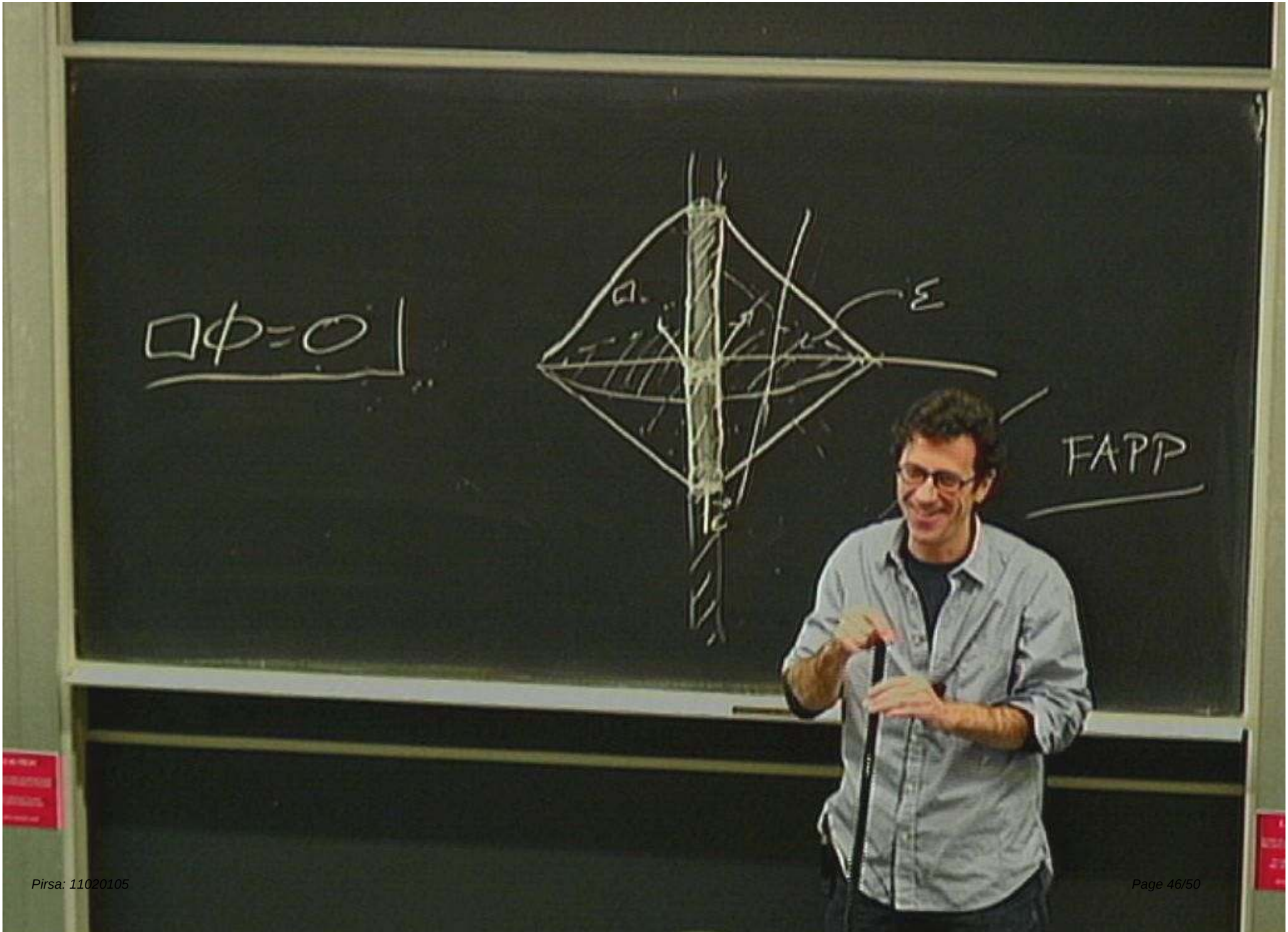
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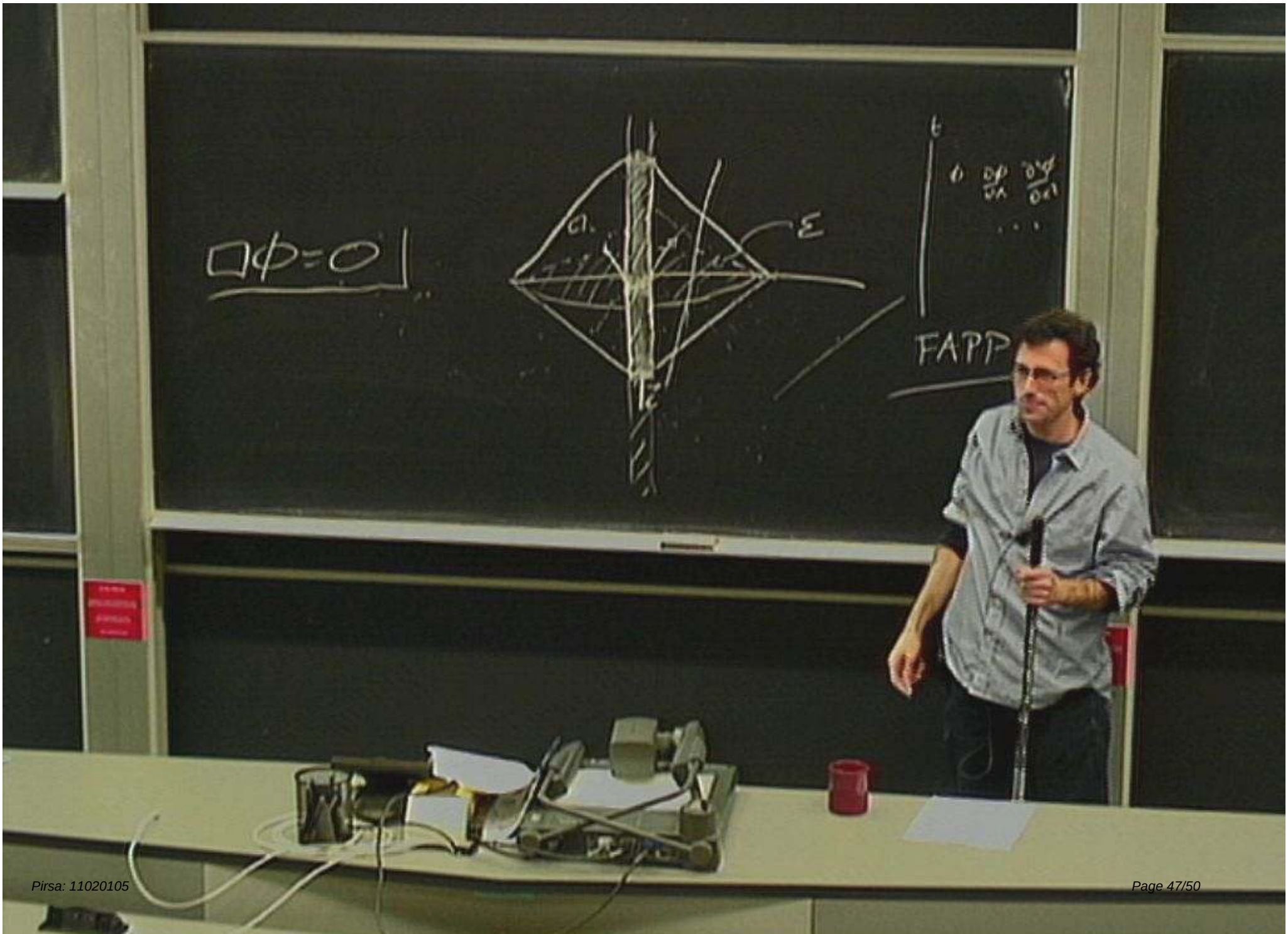
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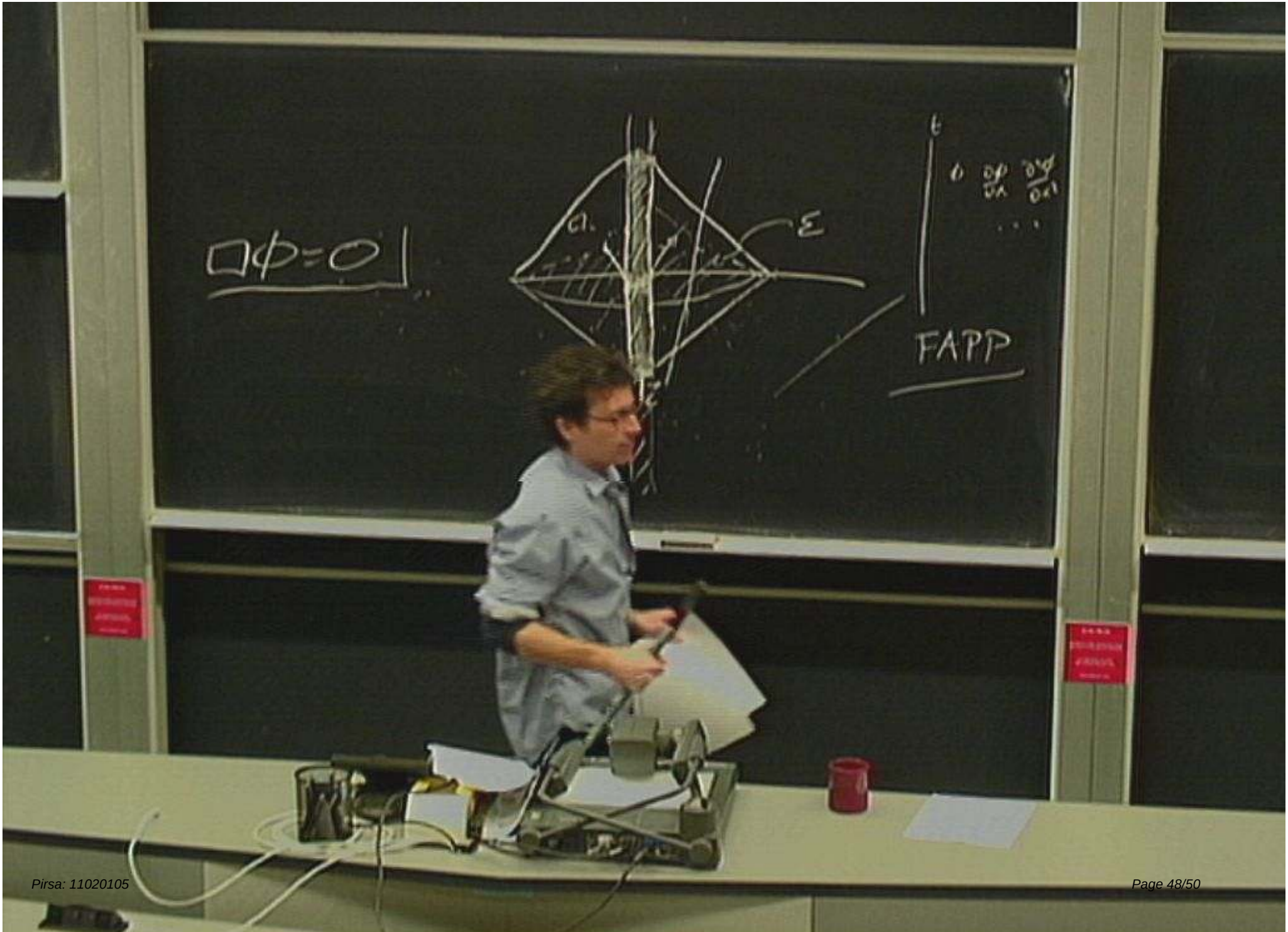
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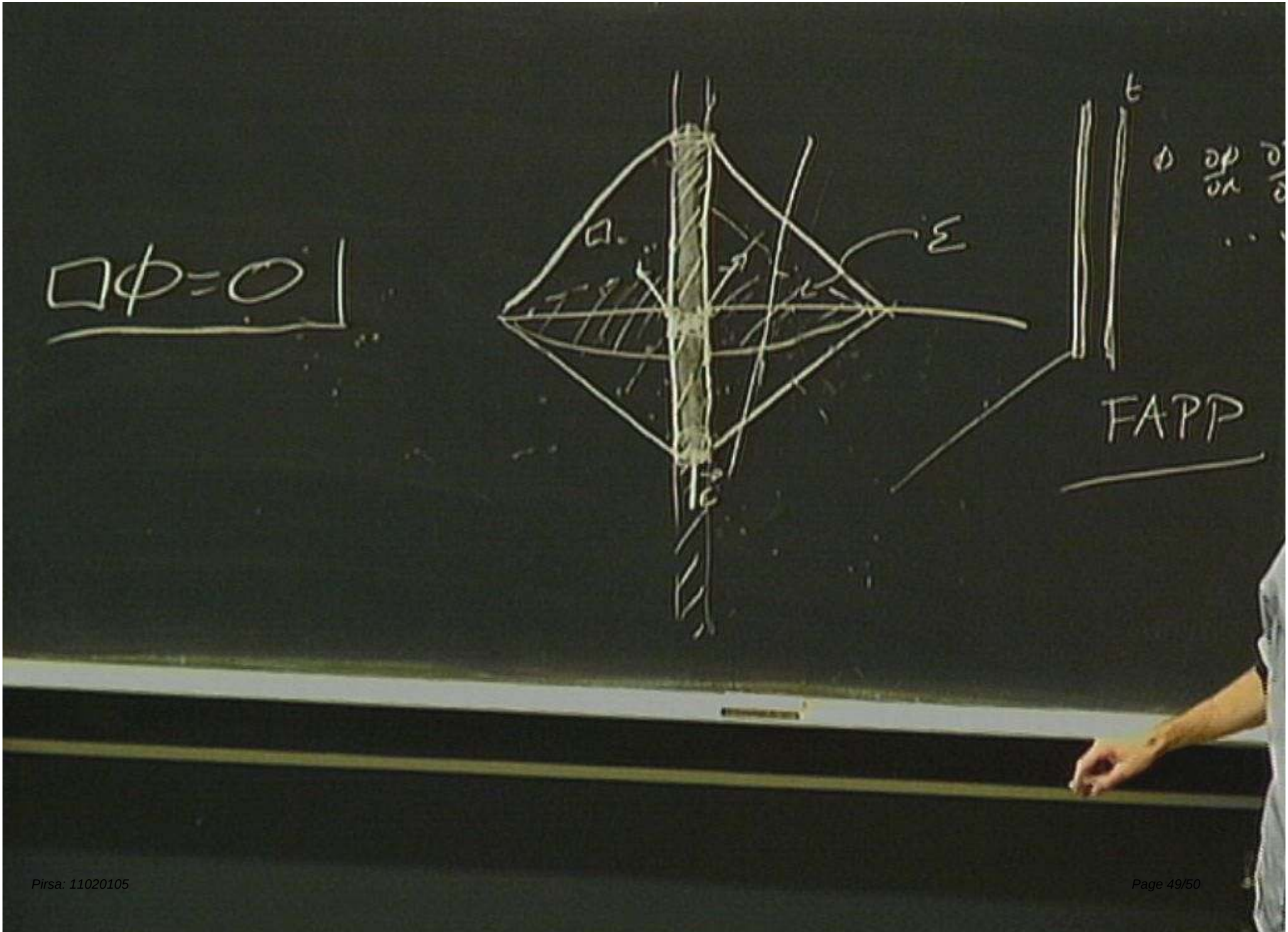
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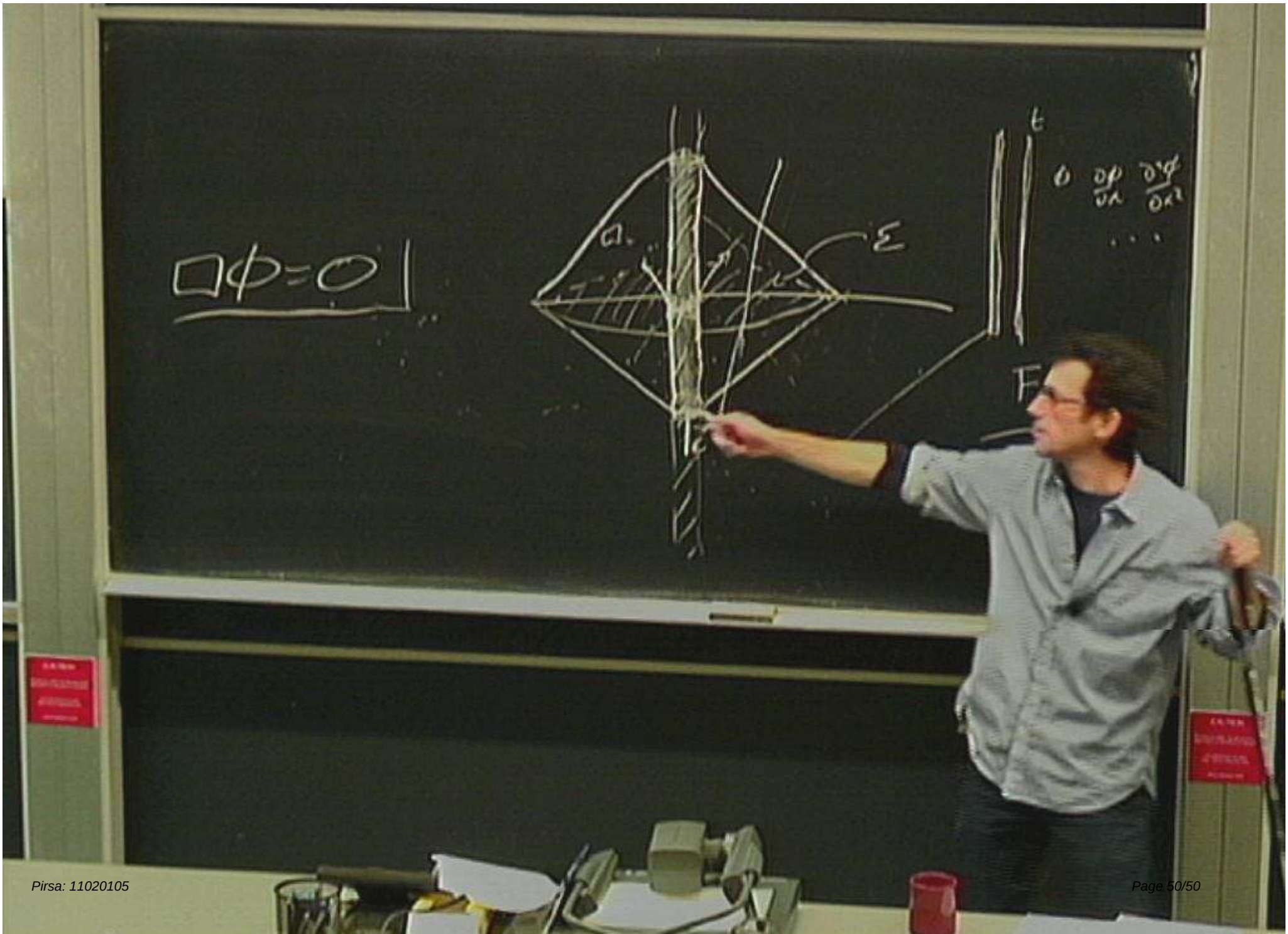
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