Ambiguous Evidence:
implications of uncertainty for science policy and expert evidence

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The diversity, complexity and dynamism of real-world policymaking present serious challenges for the roles that can be played by scientific evidence. Conclusions and associated prescriptions are often highly sensitive to the detailed ways in which questions and assumptions are framed. This is as true in courts of law as it is in wider policy deliberation. The issues at stake are often more about illuminating contending values and interests associated with alternative reasonable social or institutional perspectives, than about finding single simple – apparently definitive – 'science based' understandings.

As a result, some of the most important features of available scientific evidence are its uncertainty and ambiguity. But this can often be obscured by conventional methods of risk assessment and expert analysis. These can artificially ‘close down’ the interpretation of evidence. The associated, ostensibly-confident, single scientific recommendations, may appear more precise and authoritative. But they can also be dangerously misleading. This is true, for instance, of reliance on an individual expert witness in a legal process, just as it is on the engineering of forced consensus in wider scientific advisory procedures. This predicament places particular responsibilities on experts, policy makers and decision-makers such as judges. Foremost amongst these are imperatives to interact and communicate in ways that robustly explore the implications of alternative interpretations.

This talk will explore the practical potential for policy analysis and legal scrutiny of scientific evidence to move from being 'unitary and definitive' to becoming more 'plural and conditional'. The latter involves not just consideration of multiple equally-reasonable alternative interpretations, but also their associated rationales and contexts. In this way, an initial analysis is offered of the scope for 'opening up' key areas of science. The argument will be illustrated by pointing to a range of practical methods. These avoid inappropriate ‘closure’ and so afford a more robust basis for informing policy and legal deliberations alike, concerning the irreducible ambiguities and uncertainties that are so often intrinsic to scientific evidence.