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Introduction
In the sense relevant to this bibliography, physicalism (or materialism; the two terms are used interchangeably in the literature) is a comprehensive view about the nature of the world to the effect that every phenomenon whatever is, or is at bottom, physical. As such, it obviously raises issues about the place of phenomenal consciousness, intentionality, and morality—among other things—in a purely physical world. But it also raises issues that are independent of these familiar special cases, and it is to them that this bibliography is devoted. One cluster of issues concerns how to formulate a thesis of physicalism that is neither obviously true nor obviously false, and significant if true. This has generally been thought to require specifying (1) a narrow sense of “physical,” perhaps linked to physics, and (2) some relation of being nothing over and above such that phenomena that are not physical in the narrow sense can be claimed to be nothing over and above phenomena that are physical in the narrow sense; candidates for such a relation are identity, supervenience, realization, and, most recently, grounding. A second cluster of issues concerns the implications of physicalism. Is physicalism a posteriori? Is it (if true at all) necessarily true? Can physicalism avoid commitment to physical reductionism? If so, how, and if not, then is that a problem for physicalism? Is physicalism consistent with the countless claims of causation and causal explanation made in the special sciences and in everyday life? (This last issue overlaps so much with the problems of mental causation, which have a vast literature of their own, that it is not addressed in the present bibliography; the reader is directed to the separate bibliography on mental causation.) A third cluster of issues concerns how in principle we could have, and whether in fact we do have, empirical evidence that physicalism is true—or of course that it is false. For example, is it true that for every (narrow sense) physical effect there is a sufficient physical cause, that is, that the causal closure of the physical holds? And if it does, then can a case for physicalism be built upon it? Can observed correlations between reported mental states (say) and brain states provide reason to think that mental states just are brain states? A fourth cluster of issues concerns alternatives to physicalism. Aside from traditional forms of mind-body dualism, what possible alternatives are there? For example, panpsychism
holds that phenomenal properties are the intrinsic aspects of the properties known in physics through their causal or structural aspects. Is this a physicalist view or not? What scope is there for theses of pluralism, or of neutral monism?

General Overviews
There are no satisfactory general overviews of all the issues mentioned in the Introduction. Kim 1998, however, provides an excellent introduction to most of the main ones, and should be accessible to intermediate and advanced undergraduate philosophy students. Stoljar 2017 is a critical survey of—for the most part—the issues surrounding the formulation of physicalism; but it is aimed at a more sophisticated readership. Neither of these works brings any empirical material into their discussions. Oppenheim and Putnam 1958, though dated philosophically, usefully assembles empirical evidence (as available in 1958) for thinking that the world boils down to physics.

The world’s leading exponent of the metaphysics of mind until his recent death explores the role of supervenience and realization in formulating physicalism, plus the implications of physicalism for causation and reductionism.

Classic paper arguing on empirical grounds that science is unified in the sense that all phenomena are reducible to physical phenomena; but the reducibility intended does not require that each special science phenomenon be type-identical with some physical phenomenon. Perhaps best viewed as implying eliminative physicalism.

Philosophically stimulating commentary on attempts to characterize “physical” in the narrow sense and to specify the relation of being nothing over and above.

Books
There are several book-length treatments of physicalism in our sense. Post 1987 is an unjustly neglected book that contains far and away the fullest and most subtle attempt to formulate non-reductive physicalism by appeal to supervenience. Poland 1994 treats physicalism as a desirable program for the construction of a certain system of unified scientific knowledge, but denies that we have much evidence for believing physicalism to be true, or even any clear view of what such evidence would look like; the book appeals to a relation of realization in formulating theses of physicalism, though it gives no precise definition of it. Melnyk 2003 carefully defines a relation of realization and uses it to formulate a thesis of physicalism which it argues for by appeal to extensive empirical evidence; it addresses nearly all of the issues mentioned in the Introduction. Stoljar 2010 argues provocatively that physicalism cannot be formulated in a way that makes it both plausible and philosophically significant, but also that this conclusion makes surprisingly little difference to philosophy. Kirk 2013 is the culmination of a career’s unduly
neglected reflection on what physicalism amounts to, but goes well beyond its author’s previous work; it tackles most of the issues mentioned in the Introduction, though not those pertaining to the evidential case for physicalism. Morris 2019 provides a very thorough critical examination of attempts to formulate non-reductive physicalism that seek to articulate the idea that the world consists of various levels, favoring instead a “one-level” view of physicalism.

Important book arguing that physicalism can and should be formulated, not by appeal to identity, supervenience, or realization, but in terms of “logico-conceptual necessity” as “redescriptive physicalism,” and that so formulated physicalism is non-reductive and can allow causation at levels other than the physical.

Argues that physicalism is best formulated by appeal to realization, rather than supervenience; that, so formulated, physicalism must be importantly reductionist, and need not repudiate causal and explanatory claims framed in non-physical language; and that contemporary science provides considerable evidence for it and none against it.

Argues that extant attempts to formulate non-reductive physicalism either fail to be physicalist or fail to be non-reductive, and also fail to solve Kim’s “exclusion problem” of mental causation; does not address the problem of specifying the narrowly physical base.

Provides a very thorough treatment of most of the issues mentioned in the Introduction, plus some other (e.g., methodological) issues, though it does not address the causal implications of physicalism or the question of how it might be supported empirically.

Formulates physicalism with great care in terms (mostly) of supervenience, argues that physicalism so formulated is nonreductive, and defends it against various philosophical objections; does not tackle the causal implications of physicalism or the question of how it might be supported empirically.

Intended as an introduction as well as an original contribution, it focuses mainly on attempts to formulate physicalism. Full of challenging argumentation.

“Physical” in the Narrow Sense
Nearly all the literature on how to characterize the narrowly physical, on which, if physicalism is true, all else supervenes (or whatever), is conditioned by two brief discussions skeptical of the
possibility of a satisfactory characterization: Chomsky 1972 and Hempel 1980. Poland 1994 (pp. 109–185), cited under Books, discusses the narrowly physical at great length, and proposes an account in terms of future physics, understood as the science that answers certain questions claimed to be definitive of physics. Jackson 1998 (pp. 6–8), cited under Supervenience Formulations of Physicalism, defines the narrowly physical in a way that, he thinks, avoids what Melnyk called “Hempel’s Dilemma”: if formulated by appeal to current physics, physicalism is likely to be false, while if formulated by appeal to an ideal physics of the future, it is empty. Melnyk 2003 (pp. 11–20, 223–237), cited under Books, defends an account of the narrowly physical in terms of current physics by appeal to a general account of the acceptance of scientific hypotheses, of which physicalism is taken to be an example. Vicente 2011 also defends a characterization of the narrowly physical in terms of current physics but rejects Melnyk’s version. Montero 1999 briefly proposes the so-called ‘via negativa’ (negative way): the idea that it suffices for physicalism if the mental is not fundamental; Crook and Gillett 2001 develops the idea. Wilson 2006 subjects earlier accounts to detailed criticism, and proposes an account appealing to both current and future physics and to the via negativa. Stoljar 2010 (chaps. 3, 4, and 5), cited under Books, renews the case for doubting that a satisfactory characterization of the narrowly physical is possible. Witmer 2018 skillfully takes the second horn of Hempel’s Dilemma and defends the resulting view against many objections. Van Fraassen 1996 argues that the difficulty of characterizing the narrowly physical is so great that physicalism must be seen as an attitudinal, rather than a cognitive, affair. Ney 2008 defends an attitudinal account of physicalism precisely on the grounds that it avoids Hempel’s Dilemma.


Ney, Alyssa. “Physicalism as an Attitude.” Philosophical Studies 138 (2008): 1–15. Argues that controversies over “physical” in the narrow sense can be avoided if physicalism is construed as a commitment to be guided by physics and physics alone in one’s ontology.
Van Fraassen, Bas C. “Science, Materialism, and False Consciousness.” In Warrant in Contemporary Epistemology: Essays in Honor of Plantinga’s Theory of Knowledge. Edited by Jonathan L. Kvanvig, 149–181. Lanham, MD: Rowman and Littlefield, 1996. Argues that the difficulties of explicating “physical” in the narrow sense are so great that we should treat a physicalist (i.e., materialist) not as someone who endorses a certain thesis but as someone who takes a certain attitude.

Vicente, Agustín. “Current Physics and ‘the Physical.’” British Journal for the Philosophy of Science 62 (2011): 393–416. Criticizes the via negativa account of the narrowly physical, and argues for an account that appeals to current physics, but abstractly enough that likely developments in future physics are not ruled out.


Witmer, D. Gene. “Physicality for Physicalists.” Topoi 37 (2018): 457–472. Argues that the narrowly physical should be understood as whatever is posited by an ideal physics that in addition respects the constraint that at bottom there is nothing special about the distinctively human.

Identity Formulations of Physicalism
The obvious way to express the idea that all phenomena are nothing over and above physical phenomena is to say that each phenomenon is identical with—one and the same as—some physical phenomenon. But should it be each phenomenon-type or phenomenon-token? It is not clear that anyone has ever, at any rate explicitly, recommended a type-identity formulation of physicalism, though it is often (but wrongly) attributed to Oppenheim and Putnam 1958, cited under General Overviews. However, a type-identity formulation of physicalism would follow from the claim that every phenomenon is physically reducible together with an account of reduction requiring that each reduced phenomenon be type-identical with some reducing phenomenon (see also Physicalism, Reduction, and Reductionism); and perhaps for this reason such a formulation is a frequent stalking-horse in the literature. It is, however, almost universally disbelieved on the grounds that special science phenomena are multiply realized by physical phenomena; see, for example, Aizawa and Gillett 2009. Polger and Shapiro 2016 argues empirically for skepticism regarding the actual extent of multiple realization. Chapter 5 of Kirk 2013, cited under Books, challenges the assumption that the type-identity of every phenomenon with some physical phenomenon would be sufficient for physicalism. Fodor 1974 and Davidson 1980 famously propose token-identity formulations of physicalism, that is, token physicalism, the latter in the context of his so-called “anomalous monism.” Boyd 1980 argues on essentialist grounds that mental-to-physical token-identity claims are false. Haugeland 1982, cited under Supervenience Formulations of Physicalism, objects to a token-identity formulation of physicalism while recommending his own supervenience formulation. Kim 1998 (pp. 4–5), cited under General Overviews, argues that the mental-to-physical token-identity claims of Davidson’s anomalous monism tell us nothing positive about the relation of the mental to the
Kim 2012 develops this thesis into a general skepticism that there can be such a thing as a thesis of token physicalism that might be true while type physicalism is false. Melnyk 2003 (pp. 67–60), cited under Books, argues that token physicalism’s token-identity claims fail to entail the necessitation of the non-physical by the physical. Schneider 2012 appeals to recent work on the metaphysics of properties to argue against token-identity formulations of purportedly non-reductive physicalism.


Aims to clarify what multiple realization is and to argue empirically that it is a widespread phenomenon.


Pioneering paper arguing that physicalism about the mind can be formulated—by appeal to realization—without commitment to claims of either mental-to-physical type-identity or mental-to-physical token-identity.


Classic paper arguing for Davidson’s “anomalous monism,” the view that, while there are no strict mental-to-physical or mental-to-mental laws (and hence no mental-to-physical type-identity claims), every mental event is a physical event.


Argues that token-identity formulations of physicalism must try to identify macro-events with fusions of microphysical events; that even if microphysical events are causes and effects, it doesn’t follow that their fusions are causes and effects; and that if they are not, they are not genuine events.


Classic paper arguing, on the grounds of the pervasive multiple realization of special science phenomena, that they are not in general type-identical with physical phenomena, but that physicalism is still true because every special science phenomenon is token-identical with some or other physical phenomenon.


Aims to clarify what multiple realization is and to argue empirically that it is a widespread phenomenon.
Seeks to elucidate the nature of multiple realization and to argue on empirical grounds that its extent has been exaggerated, and that type-identity views remain a live option.

Argues that, on the commonest understandings of what properties are, the thesis that every property instantiation is identical with some physical property instantiation cannot coherently be used to formulate non-reductive physicalism.

**Supervenience Formulations of Physicalism**

Many philosophers have sought to precisify the claim that all phenomena are nothing over and above physical phenomena by saying that all phenomena globally supervene on physical phenomena. The pioneering paper, though it does not use the word “supervenience,” is Hellman and Thompson 1975. Other important early supervenience formulations are Horgan 1982, Haugeland 1982, and Lewis 1983 (pp. 362–364). The best and most fully worked out version is Post 1987, cited under Books. Versions are also given in chapter 2 of Chalmers 1996 and chapter 1 of Jackson 1998. An important new formulation of physicalism that is contrasted by its author with supervenience formulations but is surely at least a relative of them is given in Kirk 2013, cited under Books.

Brilliant and much discussed defense of the claim that phenomenal consciousness is not physical against the most resourceful replies of physicalists; ch. 2 contains a formulation of the physicalism rejected.

Proposes to formulate physicalism as a claim of global supervenience, and argues that the claim might be true even if no mental-to-physical type-identity or token-identity claims hold.

Pioneering but technical and concise attempt to formulate a non-reductive but comprehensively physicalist position. It speaks of determination by the physical rather than supervenience on the physical; but determination is merely the converse of supervenience.

Proposes a careful formulation of physicalism as a claim of global supervenience, and argues that the resulting thesis does not require the type-identification of higher-level with physical properties.
Argues first that conceptual analysis is a defensible method and in fact necessary for “serious metaphysics.” Then applies the advocated method of metaphysics to the problems of locating colors and ethical properties in a physicalist world.

Immensely influential defense of the theory of universals on the grounds of its value to systematic philosophy.

**Criticisms**
Proposed supervenience formulations of physicalism have been criticized for not being faithful articulations of physicalism. One criticism is that claims of supervenience are too strong, ruling out possible worlds that physicalism can allow; Witmer 1999 provides a useful critical survey of proposed solutions to what its author calls “the problem of extras.” Kim 1987 (p. 321) charges that claims of global supervenience are too weak to articulate physicalist intuitions, allowing large non-physical differences given only tiny and intuitively irrelevant physical differences; Post 1995 responds to this charge in great detail. Horgan 1993 appeals to G. E. Moore’s treatment of moral properties as non-natural and yet supervenient on natural properties to suggest that supervenience formulations of physicalism are too weak to ensure the physicalistic acceptability of whatever supervenes. The objection is developed in different ways in chapter 2 of Melnyk 2003, cited under Books, and in Wilson 2005; Howell 2009 responds to the objection. Hawthorne 2002 offers an entirely different and very ingenious reason for finding supervenience formulations of physicalism to be too weak.

Argues that trouble is made for supervenience formulations of physicalism by the apparent possibility that the physical might only necessitate the mental weakly, that is, only given the absence of certain potentially “blocking” properties.

Survey of supervenience theses, with special reference to formulating physicalism, in which it is argued that such theses must be explainable if they are to serve as formulations of physicalism that distinguish it from emergentism.

Defends supervenience formulations of physicalism from the objection that they fail to rule out emergentism by linking it to the characterization of “physical” in the narrow sense.

Discussion of the logical relations between strong and global supervenience, and of the sufficiency of proposed global supervenience formulations of physicalism.


Thorough and careful examination of Kim’s charge that claims of global supervenience permit enormous non-physical differences in the presence of physical differences that are tiny and intuitively irrelevant.


Argues by appeal to anti-Humean views of properties and of laws of nature that proposed supervenience formulations of physicalism are consistent with emergentism and hence insufficient for physicalism.


Critical examination of attempts by Terry Horgan, David Lewis, Frank Jackson, and David Chalmers to solve the problem of extras for supervenience formulations of physicalism, plus a new proposal.

**Realization Formulations of Physicalism**

Many philosophers have sought to precisify the claim that all phenomena are nothing over and above physical phenomena by saying that all phenomena are realized by physical phenomena in the sense of “realize” familiar from discussions of functionalism. The paper that pioneered this formulation is Boyd 1980, cited under *Identity Formulations of Physicalism*. The theses of physicalism presented in Poland 1994, cited under *Books*, appeal in part to realization. A realization formulation of physicalism is developed and argued for empirically in Melnyk 2003, cited under *Books*, and defended against critics in Melnyk 2018. Realization is there understood, roughly, as role-playing; Wilson 1999 proposes a novel account of realization in terms of the subset relation and causal powers, and proposes that physicalism be formulated by appeal to it. Important new light is thrown on this conception of realization in Shoemaker 2007. For critical discussion of what Shoemaker 2007 says about physicalism, see McLaughlin 2009. Realization physicalism is criticized in Kirk 2013, cited under *Books*. Kim 2008 (pp. 109–112) argues that the genuine functional properties (rather than functional concepts) which realization physicalism requires do not exist. The relation of realization is provocatively rejected as a gratuitous posit in Wrenn 2010. Francescotti 2010 alleges that realization cannot capture the sense in which, on physicalism, the nonphysical depends on the physical. Physicalism is formulated by appeal to a certain sort of constitution—a close relative of realization—in Pereboom 2002 and in more detail in chapters 7 and 8 of Pereboom 2011.

Argues that realization (as understood by Melnyk, Shoemaker, and Yablo) is inadequate for formulating physicalism, because it implies that some physical properties are realized by mental properties.


Argues that Nagelian bridge-law reduction yields neither reduction nor reductive explanation; that reduction appealing to type-identity claims yields reduction but not reductive explanation; and that functional reduction, favored by Kim, yields reductive explanation and perhaps also reduction.


Review of Shoemaker 2007 focusing on Shoemaker’s main concept of realization and whether it can serve in a formulation of physicalism.


Concisely restates the author’s formulation of physicalism and then answers four objections to its appeal to realization.


A formulation of non-reductive physicalism in terms of constitution, without appeal to claims of token or type identity. Defends the view against four major challenges from the late Jaegwon Kim.


Further develops the author’s 2002 formulation of non-reductive physicalism. Also defends (1) the possibility that our introspective access to phenomenal consciousness is systematically misleading and (2) the possibility of a form of physicalism holding that phenomenal properties are the intrinsic aspects of physical properties.


A brilliant essay in analytic metaphysics, this book carefully explicates several relations of realization and then develops solutions to problems of mental causation and material constitution, among others, that are consistent with the thesis of physical realization.


Agrees with Horgan 1993, cited under Criticisms, that supervenience formulations of physicalism are inadequate, but rejects its proposal for strengthening such formulations, and instead proposes formulating physicalism by appeal to a relation of realization understood in terms of causal powers and the subset relation.
Argues against, and against motivations for believing, the claim that higher-level properties stand in a reified relation of realization to lower-level properties.

**Grounding Formulations of Physicalism**
Schaffer 2009 has briefly proposed formulating physicalism by appeal to a relation of so-called grounding, understood as a primitive relation on a par with, but distinct from, such relations as supervenience and realization. Wilson 2014 argues that appeals to grounding contribute nothing to various debates, explicitly including the formulation of physicalism. Melnyk 2016 argues that the appeal to grounding would yield an inadequate formulation of physicalism.

Argues that grounding is not needed to improve on supervenience formulations, cannot yield an adequate formulation anyway, and is actually incompatible with physicalism.

Argues that metaphysics should aim at uncovering the hierarchical structure of reality, and that to do so it should appeal to a primitive relation of grounding. Suggests formulating physicalism by appeal to grounding on p. 364.

Argues in detail that the relation of grounding posited by some philosophers cannot do the metaphysical work it has been thought capable of doing, and that such traditional relations as reduction, identity, supervenience, and realization are still needed.

**The Epistemological and Modal Status of Physicalism**
Among contemporary philosophers, there is agreement that physicalism is a posteriori. But there are at least two further issues in the neighborhood. The first is whether physicalism is contingent, i.e., true in some possible worlds only. Its contingency is widely assumed, as when physicalism is formulated as a supervenience thesis that quantifies over some but not all possible worlds, or as the thesis that all actual objects, events, and property-instances are physically realized. The assumption is powerfully challenged in Levine and Trogdon 2009. The second issue arises on the widely shared assumption that, to speak approximately, if physicalism is true, then a certain conditional is necessarily true, its antecedent being a complete description of the actual way the world is physically, its consequent being a complete (positive) description of the actual way the world is non-physically. The issue is whether this necessarily true conditional is a priori or a posteriori, and hence whether physicalism entails a physical-to-non-physical conditional that is a priori or a posteriori. In the highly misleading terminology of the debate, those who say that it does are called a priori physicalists (even if they neither endorse
physicalism nor regard it as knowable a priori), while those who say that it does not are called a posteriori physicalists (even if they do not endorse physicalism). Chalmers 1996 and Jackson 1998, both cited under Supervenience Formulations of Physicalism, argue for a priori physicalism by appeal to a two-dimensionalist semantic framework. Byrne 1999 replies to such arguments. Block and Stalnaker 1999 argues for a posteriori physicalism; Chalmers and Jackson 2001 is a much-discussed reply. McLaughlin 2007 is a powerful critique of a priori physicalism.

Argues against a priori physicalism and hence against the claim that the existence of an explanatory gap (= the absence of an a priori connection) between a person’s physical states and their phenomenally conscious mental states entails the falsity of physicalism.

Argues that the reasons given, especially by Frank Jackson, to endorse a priori physicalism are no good.

Argues for a priori physicalism and against the objections to it made in Block and Stalnaker 1999.

Draws on considerations about the characterization of the narrowly physical to argue that, if physicalism is true, then it is necessarily true.

Thorough critical examination of the a priori physicalist thesis that, if physicalism is true, then there is an a priori conditional linking a complete description of the actual way the world is physically to a complete (positive) description of the actual way the world is non-physically.

**Physicalism, Reduction, and Reductionism**
The main issue here is whether physicalism is reductive, that is, whether it entails the physical reducibility of what is not narrowly physical to what is narrowly physical. But if such physical reducibility is assumed, as it very often has been, to require the type-identity of every entity that is not narrowly physical with some entity that is narrowly physical, then all the formulations of physicalism cited above under Identity Formulations of Physicalism, Supervenience Formulations of Physicalism, Realization Formulations of Physicalism, and Grounding Formulations of Physicalism, are non-reductive. Pereboom and Kornblith 1991 usefully spell out the metaphysics of non-reductive physicalism in this sense. There remains the issue, of course, of whether physicalism entails the physical reducibility of the non-physical in some other sense. The most influential skeptic about the possibility of maintaining physicalism while avoiding
commitment to any kind of physical reducibility was Jaegwon Kim. Kim 1989 contains a brief and relatively accessible presentation of his skepticism; Kim 1992 and Kim 1993 provide more detail. Chapter 4 of Kim 2005 represents Kim’s more recent thoughts, including his “functionalizing” view of reduction. Non-reductive physicalism is explicitly defended against Kim’s objections in Pereboom 2002 and Pereboom 2011, cited under Realization Formulations of Physicalism. Witmer 2003 contains a useful reply to Kim 1992. Loewer 2009 investigates the nature and plausibility of the special-science autonomy that Fodor’s non-reductive physicalism (see, for example, Fodor 1974, cited under Identity Formulations of Physicalism) is committed to. Because a priori physicalism amounts to the view that physicalism entails a certain sort of a priori physical reducibility, the literature cited under The Epistemological and Modal Status of Physicalism on a priori and a posteriori physicalism is relevant here too. Wilson 2010 is an unusually creative defense of the possibility of non-reductive physicalism. Discussion of whether physicalism can be non-reductive is also to be found in Post 1987, Poland 1994, Melnyk 2003, and Kirk 2013, all cited under Books.

Kim, Jaegwon. “The Myth of Nonreductive Materialism.” Proceedings and Addresses of the American Philosophical Association 63.3 (1989): 31–47. Argues that, given physicalism, the non-physical is either reducible to the physical or should be eliminated, i.e., deemed not to exist.


Carefully defends the possibility of an ontologically non-reductive physicalism by analyzing and then appealing to the notion of the degrees of freedom that a system has.

Careful examination of the late Jaegwon Kim’s argument in Kim 1992 that multiple realizability makes genuine psychological laws impossible.

**Empirical Evidence for Physicalism**
If theses of physicalism are a posteriori, as is generally agreed, then arguments for physicalism must appeal to empirical evidence of some sort. Some, perhaps most, opponents of physicalism allow that physicalism is true of all phenomena except the mental; they deny it only of the mental. But others (e.g., across-the-board emergentists) deny the claim that physicalism is even true of all non-mental phenomena. Extensive evidence to support the claim that physicalism is true of all non-mental phenomena can be found in Melnyk 2003 (pp. 238–280), cited under Books. In Smart 1959 it is suggested that, if physicalism is indeed true of all phenomena except the mental, then that is some evidence that physicalism is also true of the mental; the suggestion is developed in Melnyk 2003 (pp. 283–285), cited under Books. Chapter 2 of Hill 1991 argues that detailed correlations observed to hold between types of mental state and types of brain state provide evidence, via inference to the best explanation, that mental state-types are one and the same as certain brain state-types. Important criticisms of this reasoning are made in chapter 5 of Kim 2005, cited under Physicalism, Reduction, and Reductionism. Bates 2009 and McLaughlin 2010 try to answer Kim’s objections. Huemer 2009 is a valuable discussion of appeals to parsimony in philosophy, including appeals made in arguments for physicalism. Traditionally, though not recently, physicalists have thought that their view gains support from physical conservation laws. Montero 2006 argues for skepticism about this tradition, but see also Vicente 2011, cited under “Physical” in the Narrow Sense.

Point-by-point rebuttal to the objections in chapter 5 of Kim 2005, cited under Physicalism, Reduction, and Reductionism, to arguing for psychophysical identity claims on the grounds that they provide the best explanation of observed psychophysical correlations.

Systematic and very clear case for a type physicalist view of sensations, addressing metaphysical, epistemological, and semantic issues.
Argues that parsimony has no evidential value when it comes to philosophical theorizing, including when it is used to argue for physicalism.

Restatement, and defense against objections in chapter 5 of Kim 2005 (cited under Physicalism, Reduction, and Reductionism), of an argument that infers the identity of mental states with neural states as the best explanation of detailed correlations observed between mental states and neural states.

Argues for a negative answer to the titular question.

Classic paper defending the thesis that sensations are brain processes from various objections. Also hints at positive considerations favoring the thesis.

**The Causal Closure of the Physical (I)**

Two kinds of arguments for physicalism have been developed that both start from the claim that the physical is causally closed (or complete), the claim that, intuitively, it is not necessary to step outside the domain of the physical in order to explain physical events because the probability of any physical event is its probability given earlier physical events plus the laws of physics. (The terminology of “causal closure” is misleading.) The first kind of argument concludes that the mental supervenes on the physical, and is presented in Papineau 1990, Papineau 1995, and Loewer 1995. Objections to the argument can be found in Crane 1991 (to which Papineau 1991 replies) and Witmer 1998.

Detailed response to Papineau 1990, charging it with equivocation on “physical.”

Argues from the causal closure of the physical to the supervenience of the non-physical on the physical.

Argues that, because the causal closure of the physical rules out the possibility of the mental manifesting itself causally as it should if the mental failed to supervene on the physical, the mental does supervene on the physical.

A reply to Crane 1991.

Appeals to the causal closure of the physical to argue in one way (as in Papineau 1990) that the non-physical supervenes on the physical, and in another way that the non-physical is realized by the physical.


Critique of the argument for the supervenience of the non-physical on the physical given in Loewer 1995 and Papineau 1995.

The Causal Closure of the Physical (II)
A second kind of argument, often (but misleadingly) called the “causal argument”, also starts from the premise that the physical is causally closed. It concludes that mental (more generally, non-physical) states are token-identical with, or at least realized by, physical states, on the grounds that, if mental states were distinct from, and not even realized by, physical states, then, given the causal closure of the physical, the effects that mental states cause would be overdetermined, which is an unacceptable consequence. The argument seems to have originated in chapter 3.3 of Peacocke 1979. The assumption that causal overdetermination is an unacceptable consequence is challenged in Mills 1996; see also Sider 2003 for a general defense of causal overdetermination. The causal closure of the physical is challenged in Sturgeon 1998 and, on quite different grounds, in Bishop 2006; Witmer 2000 responds to Sturgeon 1998. The causal argument is developed and its premises argued for (including the closure premise) in Papineau 2001 and in Melnyk 2003, which, however, formulates the argument as inductive rather than deductive. Lowe 2003 contains a defense of dualism against the force of the argument by a long-standing critic.


Argues that physics does not in fact support the claim that the physical is causally closed.


Argues that the overdetermination to which interactionist dualism leads is unobjectionable.

Formulates a causal argument for the identity of the mental by the physical, and claims to find support for the key premise that the physical is causally closed in a detailed review of the history of science.

Wide-ranging book arguing for, and for the significance of, a deep structural similarity between the explanation of action and that of perceptual experience.

Brief critical discussion of reasons for thinking that overdetermination is an undesirable consequence of a view.

Powerfully challenges causal arguments for physicalism on the ground that the key premise that the physical is causally closed equivocates on “physical.”

Defends the causal argument against Sturgeon 1998.

**Further Issues**  
Obviously there are numerous objections to physicalism that arise from consideration of such comparatively specific features of the world as phenomenal consciousness, intentionality, and morality; but the literature concerning these objections lies beyond the scope of this bibliography. Among other issues so far unmentioned, however, are some to do with the relationship between physicalism and actual physics. One is whether reality has a fundamental level, and if it does not, whether physicalism must therefore be false; see Schaffer 2003, which first raised the issue, and Montero 2006, which brings out its complexity. Another issue is the relationship between physicalism and the apparently popular claim that everything supervenes, in particular, on the microphysical; see Hüttemann and Papineau 2005, which forcefully brings out the non-triviality of the issue, and Papineau 2008. A third and related issue is whether or not the world as described by current physics constitutes a single object. Esfeld 1999 argues that it does in an admirably accessible way (though a glancing familiarity with quantum mechanics on the reader’s part would be helpful). Chapter 7 of Horgan and Potrč 2009 formulates in more detail the view that fundamentally the world is a single object—what they call the “blobject.” A fourth issue is the question of why, if physicalism is true, there are any laws in addition to those of physics; Loewer 2008 raises this issue. Wilson 2010, cited under Physicalism, Reduction, and Reductionism, in effect addresses the issue that Loewer raises, but gives a response in terms of
the different degrees of freedom of systems at different scales. Wallace 2003 contains a fascinating discussion of the place of commonsense and special-scientific objects in a world as described by quantum mechanics. A fifth issue is whether the apparently indispensable role of mathematics in physics poses a problem for physicalism; Schneider 2017 argues at length that it poses an insuperable problem.

Esfeld, Michael. “Physicalism and Ontological Holism.” *Metaphilosophy* 30.4 (1999): 319–337. Argues that, to judge by our best current physics, if physicalism is true, then what everything ultimately supervenes on, or is realized by, is one thing: the global quantum state of the world.


Proposes a highly revisionary monistic view of the world’s ontology, but combines it with a theory of truth that still allows many claims from common sense and from the special sciences to be true.


Argues that the issue of whether physicalism is true is distinct from the issue of whether everything depends on how things are microphysically.


Addresses the problem of how there can be local, temporally-asymmetric special-scientific laws, given that the best candidates for fundamental physical laws are global and temporally symmetric. Proposes as a solution David Albert’s suggestion that, as a matter of fundamental law, the universe began in a low entropy state.


Argues that, when suitably formulated, physicalism might be true in a world with no fundamental level.


Distinguishes various sub-questions raised by the title’s question, and proposes answers to them.


Explores the consequences for various views, including physicalism, of the possibility (which the author regards as open) that reality has no fundamental level such as physicalism seems to require.

Argues that physics is committed to mind-independent abstract mathematical entities that are not compatible with physicalism; published alongside the paper are several critical responses, most of which defend physicalism.


Argues that the so-called “many worlds” interpretation of quantum mechanics can rebut the charge that it does not allow for the determinate macro-world of common sense.

**Rivals to Physicalism**

The traditional varieties of mind-body dualism fall outside the scope of the present bibliography because they are restricted to the relationship between the mental and the physical. Here we only consider rivals to physicalism that share with physicalism in our sense the goal of giving an account of the relationship between everything that is not narrowly physical and what is narrowly physical. One class of such rivals claims, roughly, that the privilege that physicalism assigns to physics is undeserved, and that all the sciences are on an ontological par. Such a view seems to be endorsed in chapters 1, 6, and 7 of Goodman 1978 and is clearly endorsed in Crane and Mellor 1990, Dupré 1993, Cartwright 1994, and Ladyman and Ross 2007 (which is unique in giving, in chapter 4, a detailed positive account of how the respective domains of the many sciences are meant to fit together on its non-physicalist view). A second class of such rivals claims that physics is indeed privileged in the sense that all phenomena are ultimately emergent from physical phenomena, but emergence is understood in such a way that the resulting emergentist doctrine is incompatible with physicalism. Gillett 2016 explores the relevant issues with unparalleled thoroughness. A third class of rivals takes inspiration from the Aristotelian doctrine of hylomorphism; Jaworski 2016 contains the fullest and most sophisticated elaboration of such a view currently available. The varieties of idealism form a fourth class of rivals to physicalism, though they are rarely if ever discussed in the literature on physicalism; Foster 2008 makes a powerful case for idealism.


Argues that there is no warrant for taking the well-confirmed laws of physics to have the sort of universal scope that would be required for them to constitute fundamental laws on which all other laws depend.


Argues that previous attempts to formulate physicalism do not simultaneously avoid both triviality and obvious falsity.


Argues, with special reference to the biological sciences, against physical reductionism and physicalism.
Argues lucidly and with great care against the mind-independent reality of the (supposedly) external world, and for an ultimately theistic kind of idealism.

Philosophically sophisticated and scientifically informed, this examination of current debates between reductionists and emergentists in both science and philosophy seeks to clarify the issues, and argues that these debates are empirically tractable.

Stylish but highly elliptical explorations of the author’s view that all things—even the stars—are made by human thought.

Carefully formulates a hylomorphic account of the relation between the mental and the physical (and, more generally, between the non-physical and the physical), argues for its superiority over physicalist alternatives, and defends it against multiple objections.

A highly ambitious exercise in naturalized metaphysics, it argues that, when current physics is taken seriously as our best guide to what the world is like, we must conclude that there are no objects, not even at the fundamental physical level, and that the world is at bottom purely structural.