

The opinion in support of the decision being entered today was not written for publication in a law journal and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DASARAO K. MURTI, BENG S. ONG
and JAMES M. DUFF

Appeal No. 2005-0817
Application No. 10/167,683

ON BRIEF

Before KIMLIN, PAK and PAK, Administrative Patent Judges.

KIMLIN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1-14.

Claim 1 is illustrative:

1. A process comprising:

creating a dispersion including: (a) a continuous phase comprising a solvent, a binder resin at least substantially dissolved in the solvent, and (b) a disperse phase comprising an organic semiconductor material; and

solution coating using the dispersion to form a semiconductor layer of an electronic device selected from the group consisting of a micro-electronic device and a nano-electronic device, wherein the semiconductor layer comprises the organic semiconductor material and the binder resin.

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The examiner relies upon the following references as evidence of obviousness:

Nakamura et al. (Nakamura)	5,405,725	Apr. 11, 1995
Chambers et al. (Chambers)	5,876,887	Mar. 2, 1999
Dimitrakopoulos et al. (Dimitrakopoulos)	5,946,551	Aug. 31, 1999
Wolk et al. (Wolk)	6,410,201 B2	Jun. 25, 2002 (filed Jul. 24, 2001)
Yang (Patent Application Publication)	US 2002/0135039 A1	Sep. 26, 2002 (filed May 17, 2002)

Appellants' claimed invention is directed to a process for forming a semiconductor layer by solution coating a dispersion comprising a solvent and a binder resin in a continuous phase and a disperse phase comprising an organic semiconductor material. The formed semiconductor layer is part of a micro-electronic device or a nano-electronic device.

The appealed claims stand rejected under 35 U.S.C. § 103(a) as follows:

- (a) claims 1-9 over Nakamura in view of Wolk,
- (b) claim 10 over Nakamura in view of Wolk and Chambers,
- (c) claim 11 over Nakamura in view of Wolk and Yang,
- (d) claims 12-14 over Dimitrakopoulos in view of Nakamura and Wolk.

Appellants submit at page 5 of the Brief that "[f]or each of the rejections, the claims do not stand or fall together."

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However, appellants do not set forth separate arguments for claims 2-9 and 13-14. Accordingly, claims 2-9 stand or fall together with claim 1, while claims 13 and 14 stand or fall together with claim 12.

We have thoroughly reviewed each of appellants' arguments for patentability. However, we are in complete agreement with the examiner that the claimed subject matter would have been obvious to one of ordinary skill in the art within the meaning of § 103 in view of the applied prior art. Accordingly, we will sustain the examiner's rejections for essentially those reasons expressed in the Answer, and we add the following primarily for emphasis.

Appellants do not dispute that Nakamura, like appellants, discloses a process for forming a semiconductor layer by solution coating a dispersion comprising a solvent and binder resin in a continuous phase and an organic semiconductor material in a disperse phase. It is appellants' principal contention that Nakamura, being directed to the fabrication of photoconductors, is non-analogous art with respect to appellants' fabrication of micro- and nano-electronic devices. However, as explained by the examiner, appellants' argument relates to only the first of a two-pronged test for determining analogous art. In re Wood,

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582 F.2d 638, 642, 199 USPQ 137, 140 (CCPA 1978). The second prong of the test is whether the problem addressed by the prior art is reasonably pertinent to the problem confronting the applicant.

In the present case, we fully concur with the examiner that Nakamura's disclosure of how to form a semiconductor layer is reasonably pertinent to appellants' problem of forming a semiconductor layer in a micro- or nano-electronic device. Appellants have failed to advance any rationale why Nakamura's process of forming a semiconductor layer by solution coating a dispersion would have been considered by one of ordinary skill in the art as unsuitable for, or unrelated to, making the recited electronic devices. We note that appellants' specification discloses the same organic semiconductor materials as those disclosed by Nakamura, e.g., perylene pigments, metal phthalocyanines and halogenated anthanthrones (compare appellants' specification, at page 6, second paragraph, to Nakamura at column 4, lines 43-53). Inasmuch as appellants are forming semiconductor layers comprising the same components as the semiconductor layer of Nakamura, we find that one of ordinary skill in the art would have found it prima facie obvious to employ Nakamura's process for forming the semiconductor layer of the claimed devices.

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Regarding separately argued claim 10, we also concur with the examiner that it would have been obvious for one of ordinary skill in the art to substitute the spin coating technique of Chambers for the immersion (dip) coating and spray coating of Nakamura. Appellants have presented no argument explaining why the substitution of one conventional coating technique for another would not have been obvious to one of ordinary skill in the art. Likewise, we agree with the examiner that Yang evidences the obviousness of using inkjet printing for coating a solution of an organic semiconductor, as recited in claim 11.

As for the separate rejection of claims 12-14 over Dimitrakopoulos in view of Nakamura and Wolk, we subscribe to the reasoning set forth by the examiner in the Answer.

As a final point, we note that appellants base no argument upon objective evidence of nonobviousness, such as unexpected results, which would serve to rebut the prima facie case of obviousness established by the examiner.

In conclusion, based on the foregoing and the reasons well-stated by the examiner, the examiner's decision rejecting the appealed claims is affirmed.

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv) (effective Sep. 13, 2004; 69 Fed. Reg. 49960 (Aug. 12, 2004); 1286 Off. Gaz. Pat. Office 21 (Sep. 7, 2004)).

AFFIRMED

EDWARD C. KIMLIN)	
Administrative Patent Judge)	
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CHUNG K. PAK)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
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Administrative Patent Judge)	

ECK:clm

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