HISTORY OF DEBATE ON ORBITAL MOMENT in NiO in PHYS. REV. LETT.

Submission to Phys. Rev. Lett.: LF7313
THE ORBITAL MOMENT IN NiO

From: <sfradwan@cyf-kr.edu.pl>
To: prltex@aps.org
Subject: submit PRL Radwanski
Date sent: Tue, 8 Jun 1999 19:12:10 +0200

From R. J. Radwanski
Center for Solid State Physics
Fax:48-12-6336146
To: Editor of Phys.Rev.Lett.

The Editor of Phys. Rev. Lett

Dear Sir,
Please find attached my paper:
The orbital moment in NiO
by R. J. Radwanski, Z. Ropka and R. Michalski,
that I submit for publication in Phys. Rev. Lett..
Paper is prepared in the tex.file.
Paper contains one Figure that is attached in EPS.file.

The paper offers theoretical result for the orbital and spin moment in NiO. This is hot topic in the nowadays magnetism.

We would appreciate publication of this paper.
We expect normal scientific treatment of our paper.
Please inform me about the referee process.

Sincerely Yours,
R. J. Radwanski

Attachments:
C:3dbis-99:m-nio.eps
C:3dbis-99:nio-prl.tex

PHYSICAL REVIEW
PHYSICAL REVIEW LETTERS
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Fax (516) 591-4141

6 August 1999

Dr. R.J. Radwański
Center for Solid State Physics
sw. Filip 5
31-150 Krakow, POLAND

Re: Orbital moment in NiO

By: R.J. Radwański, Z. Ropka, and R. Michalski LF7313

Dear Dr. Radwański:

The above manuscript has been reviewed by our referee(s).

On the basis of the resulting report(s), it is our judgment that the paper is unsuitable for publication in Physical Review Letters. We enclose comments from the criticism that led to our decision.

Yours sincerely,

Gene L. Wells
Editor
Physical Review Letters

Manuscript: LF7313 Referee Report A

The aim of Physical Review Letters is "... to keep broadly interested physicists well informed on vital current research."

The subject matter (namely the spin and orbital moments of the Ni ion) and its treatment in the present manuscript cannot by any imaginable criteria be described as *vital current* research. In my opinion the paper is not acceptable as a Phys. Rev. Letter.

If they wish to publish their results, the authors should submit them to Phys. Rev. B, including a description of their calculation so there will be no need to refer the reader to their unpublished Ref. 8.

LF7313 Report of referee B NiO

The present work deals with the magnetic moments of the NiO system which has a long lasting research interest in solid state physics. Apparently, the approach is quite conventional and simple as there are no details of any new theories mentioned and no formulas given about their method of calculation. The description of this work is very brief with only two double-spaced pages. Since the refs. [7] and [8] are unavailable to the referee, there is no way to judge the validity of this work. There is no detailed discussion about the origin of the orbital moment of 0.54 uB which should be the most important result presented in this paper.

Overall, this manuscript must be rewritten to provide much more significant substances as mentioned above before it could be reconsidered for publication.

6 August 1999

Appeal from the negative decision of the Editor with answer to Referee A and B

From: <sfradwan@cyf-kr.edu.pl>
To: prltex@aps.org
Subject: resubmit LF7313 Radwanski
Date sent: Wed, 15 Sep 1999 17:52:23 +0200

From: R.J.Radwanski
To: Editor of PRL
dr G. L. Wells

resubmit: LF7313
Dear Editor,

Please find included resubmission of my Letter entitled:
Orbital moment in NiO
by R. J. Radwanski, Z. Ropka and R. Michalski
after your rejection, 6.08.1999, on basis of negative referee reports.
Letter has been revised following critical remarks of referees. Two unpublished references have been removed. In fact one i.e. Ref.7 was only remark that my program is available to other people. Ref. 8 has been omitted - two Hamiltonians appear in the text in the detailed form. The addition of these two Hamiltonian should satisfy Ref. B and his main objection.

The main objection of Referee A that the paper does not present the vital current research is very unscientific - on my reference list there are shown recent papers from Phys. Rev. Lett., secondly - in each new volume of PRL there are few papers about 3d-ion oxides. Thus, this argument cannot be taken seriously.
I hope that referees will be satisfied with my improvement of the Letter and recommend it for the publication.

Sincerely Yours,
R. J. Radwanski
Attachments:
C:3dbis-99:Nio-prl3.tex
C:3dbis-99:m-nio.eps
Attached: Answer to Ref. A and Ref. B.

Answer to the referee A of the Letter LF7313:
Orbital moment in NiO
by R. J. Radwanski, Z. Ropka and R. Michalski.

15 Sept 1999

R. J. Radwanski
CSSP, Snt Filip 5, 31-150 Krakow, Poland

Dear referee A,
I ask you to change your opinion that the Letter does not present vital current research. Subject of NiO is under strong discussion by more than 50 years. Magnetism of 3d-ion compounds is still very debated. At present, systems like $LaMnO_3$ or $LaCoO_3$ has got enormous importance. This is reflected in my Letter by Ref. 1 and 4 from PRL, 2 and 7 from PRB. In each volume od PRL everybody can find a few paper dealing with 3d-ion oxide. Thus your opinion that my Letter does not present presently vital research is not well founded in the reality.
Ref. 8 has been omitted - instead two Hamiltonians have been shown in details. It allows to know the details of calculations.

Thus, I ask you to recommend this Letter for publication - it will allow the open scientific discussion.

Sincerely Yours,
R. J. Radwanski

Answer to the referee B of the Letter LF7313:
Orbital moment in NiO
by R. J. Radwanski, Z. Ropka and R. Michalski

15 Sept 1999

R. J. Radwanski
CSSP, Snt Filip 5, 31-150 Krakow, Poland

Dear referee B,
I ask you to change your opinion.
Subject of NiO is under strong discussion by more than 50 years. Magnetism of 3d-ion compounds is still very debated. At present, systems like $LaMnO_3$ or $LaCoO_3$ has got enormous importance. This is reflected in my Letter by Ref. 1 and 4 from PRL, 2 and 7 from PRB. In each volume od PRL everybody can find a few paper dealing with 3d-ion oxide.
Ref. 8 has been omitted - instead two Hamiltonians have been shown in details. It allows to know the details of calculations. The approach seems to be quite conventional, but - according to our best knowledge - up to now it has not been calculated. The spin-orbit coupling has been considered, if considered, by perturbation method. By last 30 years another approach is worked out - see to Ref. 1. In this single-particle approach the spin-orbit coupling is not taken into account as it has negligible effect. In our approach the spin-orbit coupling is extremally important. It shows that the conventionality of our approach should be taken as large point for our calculations.
The origin of the orbital moment is the spin-orbit coupling and later the further polarization of the eigenfunction by the molecular field, that is so large as 500 T.
Thus, I ask you to recommend this Letter for publication - it will allow the open scientific discussion.

Sincerely Yours,
R. J. Radwanski

Rejection with referee reports B2 and C

Date sent: Tue, 19 Oct 1999 13:22:42 -0400 (EDT)
From: PRL-email <prl@aps.org>
To: sfradwan@cyf-kr.edu.pl
Subject: LF7313
Copies to: prl@aps.org

LF7313
Orbital moment in NiO
Radwanski R. J., Ropka Z., Michalski,R.

Dear Dr. Radwanski:

The above manuscript has been reviewed by our referee(s).

On the basis of the resulting report(s), we conclude that the paper is unsuitable for publication in Physical Review Letters. We enclose comments from the criticism that led to this editorial decision. In accordance with our standard practice (see enclosed memo), this concludes our review of your manuscript.

Sincerely yours,
Rashmi Ray
Assistant to the Editor
Physical Review Letters

Second report of referee B (B2)
The authors added only two equations in their revised manuscript to show their method of approach. Although there were not much materials added, the two equations did clearly indicate the inadequacy of their approach:-

1) The ground term approximation used in the eqt.(1) is rather invalid as the Coulombic interaction has been omitted and the spin-orbit coupling is of the strength comparable to the crystal field term. The mixing effects (between various terms/states) due to the crystal field and the spin-orbit coupling would be much more significant than those

found in the rare earth systems that the authors claimed to resemble with. Hence, they must reconsider all the excited terms together using a full Hamiltonian diagonalisation program (see, e.g. Yeung and Rudowicz, 1992 Comput. Chem. 16, 207). The poor approximation may explain why their calculated orbital moment of 0.54 μ_B is much larger than the experimental value of 0.32(0.05) μ_B as found by other researchers.

2) The mean-field approximation as given in Eqt.(2) seems to be too simple and rudimentary as compared with other approaches in modern magnetic theory. The authors need to consider much more variety of possible interactions and advanced approaches (e.g. double exchange, superexchange, electron-phonon interaction, second quantisation, Wannier representation, Jahn-Teller effect which is related to the trigonal distortion mentioned briefly in this paper without any in-depth analysis etc.) so that they could write up a research paper of some significant values.
While it is very unpleasant to write/read some discouraging comments, the authors are strongly advised to do a more comprehensive literature search to sense the current status of research in this field. There might be no such a kind of calculations published before but the reason is simply because they are too trivial and convey insignificant scientific advancement.

Report of referee C
The theory is a parameter theory, which is very much old-fashioned in this field. Such a parameter fitting only is a thing of little worth in the present day. The model and the parameters should be verified by a first principle calculation or an alternate calculation. The paper is not suitable for publication in PRL.

SIMPLE QUESTION TO THE EDITOR OF PHYS. REV. LETT.

From: <sfradwan@cyf-kr.edu.pl>
To: PRL-email <prl@aps.org>
Subject: Report LF7313 Radwanski
Date sent: Wed, 20 Oct 1999 13:45:18 +0200

From: R. J. Radwanski

To: Editor of Phys. Rev. Lett

Concerns: LF7313: Orbital moment in NiO
by R. J. Radwanski, Z. Ropka and R. Michalski

Dear Editor,

Thank you for your email of 19 October 1999. As it is impossible to discuss with the undefined critics please ask the referees A, B and C to give the short answer for one question:

What paper do you, i.e. the referee, consider as the most representative for theoretical understanding of NiO:
So, provide the reference.

Sincerely Yours,
R. J. Radwanski

Appeal from the negative decision of the Editor with answer to Referee B2 and C

From: <sfradwan@cyf-kr.edu.pl>
To: prl@aps.org
Subject: Radwanski LF7313 Resub
Date sent: Thu, 21 Oct 1999 12:39:51 +0200

Krakow, 21.10.1999

Dr R.J. Radwanski
Center for Solid State Physics
Snt Filip 5, 31-150 Krakow, Poland
FAX: 48-12-6324012; tel.: 48-12-6336146
e-mail: sfradwan@cyf-kr.edu.pl

To DAE of Phys. Rev. Lett.

Concerns: LF7313: Orbital moment in NiO
by R. J. Radwanski, Z. Ropka and R. Michalski

Dear DAE,
By this I put appeal from the negative decision of the Editor obtained by email 19.10.1999. This decision is based on reports [B2 and C].
The reports have shown that we have different point of view on magnetism of NiO. We have respect to referees of PRL, we think that they are the best in the world, but we are fully aware of all science related with general understanding of NiO, the magnetism of NiO in particular.
Then we have found these reports scientifically dishonest in the sense that they cannot accept the possibility for searching of the solution not in the main stream of modern theories. We expect them to be more scientifically open - it is our approach that in the relatively simple way explains the complex problem of magnetism and electronic structure of NiO. The simplicity and old-fashioned way we are taking as the great plus for our theory. We know why old-fashioned theory did not work in the past, what was reason that people have developed these complex "advanced modern theories".
As it is difficult to discuss on undefined modern theories we have asked the Editor, 20.10.99, to ask the referees "what paper you, i.e. the

referee consider as the most representative for understanding of NiO".

Below we gave the answer to all problems of referees. We appreciated very much their modest and polite form but we cannot accept the depreciation of our work the more when it offers the explanation of the important scientific problem.
We are fully aware that our approach is in different scientific paradigm. In such situation both opposite sides do not appreciate their approaches. Our comments, however, are not "suitable" for publication what we are taking as strong violation of scientific rules.

Sincerely Yours,
R. J. Radwanski

Attached answers to Ref. B2 and C

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ANSWER OF RADWANSKI et al. TO THE REFEREE REPORT B2 (lines without >, original report marked by >)

Krakow, 21.10.1999

>LF7313: "The orbital moment in NiO"
>by Radwanski et al.
>Second report of referee B
>The authors added only two equations in their revised manuscript >to show their method of approach. Although there were not much >materials added, the two equations did clearly indicate the inadequacy >of their approach:-
>1) The ground term approximation used in the eqt.(1) is rather >invalid as the Coulombic interaction has been omitted.

It is not true. Not shown Coulombic term means that we worked in very large Coulombic term limit. It is the same as in literature e.g. the nuclear terms are not shown but it only means that they are taken to be extremally large.

>and the spin-orbit coupling is of the strength comparable to the
>crystal field term.

It is not true. With the parameters shown in our paper B4=2meV and lambdas-o= -41 meV the overall CEF splitting amounts to 2.16 eV whereas the overall s-o effect amounts to 0.288 eV. Thus the s-o coupling is 7-8 times smaller. Moreover, our values for the s-o coupling are taken directly from the text-book of Abragam.

>The mixing effects (between various terms/states) due to the
>crystal field and the spin-orbit coupling would be much more
>significant than those found in the rare earth systems that the
>authors claimed to resemble with.

No, again no. We mention about our rare-earth analysis but there we are working in the opposite limit, i.e. practically with the infinite value of the s-o coupling and small CEF.

>Hence, they must reconsider all the excited terms together using a
>full Hamiltonian diagonalisation program (see, e.g. Yeung and
>Rudowicz, 1992 Comput. Chem. 16, 207).

God bless you, but it is not my business. My business is: did you (or somebody in literature) made it already. If not, please allow others to do their own physics. We can only compare the physical adequancy to the reality.

>The poor approximation may explain why their calculated orbital
>moment of 0.54 μ_B is much larger than the experimental value of
>0.32(0.05) μ_B as found by other researchers.

This is very dishonest. In literature, according to our knowledge, there is not any quantitative result about the orbital moment. Secondly, our value of 0.54 μ_B referes to 0 K whereas the measurements of Fernandez (PRB 57 (1998) 7870) are at 300 K. There is comment in our 2-page paper on this discrepancy. Thirdly, intention of our paper was not to fit the experimental value but to show that relatively simple, old-fashioned theory can account for the formation of the orbital moment of size quite close to the experiment.

>2) The mean-field approximation as given in Eqt.(2) seems

we appreciate this modest word

>to be too simple and rudimentary as compared with other
>approaches in modern magnetic theory.

This we are taking as great plus of our theory.

>The authors need to consider much more variety of possible
>interactions and advanced approaches (e.g. double exchange,
>superexchange, electron-phonon interaction, second quantisation,
>Wannier representation, Jahn-Teller effect which is related to the
>trigonal distortion mentioned briefly in this paper without any
>in-depth analysis etc.) so that they could write up a research paper
>of some significant values.

You welcome to do this. About the J-T effect please blaim the Editor of PRL - we have presented to PRL beatyful analysis of the Jahn-Teller effect for the Ni^{2+}-ion and Co^{3+}, Fe^{2+}-compounds (3 papers in PRL e.g. LE6485 (submitted date 12.05.1997), LC7763, LL6530) that are under stringent staggered referee proces. We are aware of all these concepts and interactions and we are sure that our paper brings important ideas to the understanding of the problem.

>While it is very unpleasant

thanks for the polite words, but we register these unpleasant comments as the documentation of the way of thinking of modern theoreticians.

>to write/read some discouraging comments,

Please be informed that we are not discouraged by your report - we thank you very much for your extended expression of your attitude. Thanks clear expression of our scientific points of view we can find how it is realized in Nature.

>the authors are strongly advised to do a more comprehensive
>literature search to sense the current status of research in this field.

We know all literature and we know the status of research and theory. Please note that e.g. first principle calculations presented in

paper of Solovyev et al. PRB 53 (1996) 7158 do not take into account even the spin-orbit coupling. My Comment to this paper, BFK631, has been judged not to be suitable. [This comment has been printed in Acta Physica **18** (2008) 23].

>There might be no such a kind of calculations published before

we indeed did not find them in literature

>but the reason is simply because they are too trivial and convey
>insignificant scientific advancement.

No, no, no, no. They have been made 30-40 years ago. Then it was no computer and the calculations have been performed by perturbation methods, that are approximate. And many statements from the approximate perturbation method are incorrect as far as details become important. Details of 1 meV are important for description of real compounds. We are making calculations with this accuracy what cannot be said about the "modern solid-state physics theories".
I hope that you are satisfied with our answers. Please recommend our paper for publication. It will allow the open scientific discussion.

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ANSWER OF Radwanski to the referee report C
(given on the report marked by >,
my answers in lines without >)

Krakow, 21.10.1999

LF7313: Orbital moment of NiO by Radwanski et al.

Report of referee C

>The theory is a parameter theory, which is very much old-fashioned
>in this field.

We are taking it as the strong plus for our theory. Thanks it (old-fashioned) it is well founded in metal physics and solid-state physics. It is continuation of works of Bethe, Kramers, Van Vleck, ... Modern

theories are many-parameter theories. Up to now the simplicity was taken in Physics as the strong argument for. The simplicity cannot be treated a priori as the invalidation of the theory.

>Such a parameter fitting only is a thing of little worth in the
>present day. The model and the parameters should be verified by a
>first principle calculation or an alternate calculation.

At present such first principle calculation are not able to provide description of physical properties of NiO (the present status you can see in Refs 1-4, 7 of our paper). If they exists our paper will have no sense.
Moreover, in Physics the theory is verified by experiment not by the computer calculation, even very sophisticated. It is hardly possible to expect that ab initio methods can verify another approach in situation when they cannot describe even many simple physical properties of NiO.
Please note that e.g. first principle calculations presented in paper of Solovyev et al. PRB 53 (1996) 7158 do not take into account even the spin-orbit coupling. My Comment to this paper, BFK631, has been judged not to be suitable. [This comment has been printed in Acta Physica **18** (2008) 23].

>The paper is not suitable for publication in PRL.

I hope that you are satisfied with our answers. Please recommend our paper for publication. It will allow the open scientific discussion.

Sincerely Yours,
R. J. Radwanski

Rejection by DAE dr W. E. Bron

Date sent: Mon, 22 Nov 1999 14:40:42 -0500 (EST)
From: PRL-email <prl@aps.org>
To: sfradwan@cyf-kr.edu.pl
Subject: LF7313
Copies to: prl@aps.org

LF7313
Orbital moment in NiO
Radwanski R. J., Ropka Z., Michalski R.

Dear Dr. Radwanski,

The complete file concerning the above manuscript has been reviewed by a Divisional Associate Editor. The enclosed comments advise against publication in Physical Review Letters. The Editors accept this advice.

Your appeal has been considered, and our decision to reject is maintained.

Sincerely yours,
Gene L. Wells
Editor
Physical Review Letters

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Report of Divisional Associate Editor

This paper does not consider modern techniques of calculations of such elements as orbital moments of the relative simple case of NiO.

With the advent of computer, various investigations of many models and mathematical techniques become possible. In the present case, a simple technique is used to match one calculation of a particular set of assumptions to calculations of the single and relatively simple case of the orbital moments in NiO.

In order to even start on the problem one would need a comparison of this case to other relevant cases. In addition, other models, plus other methods of evaluation for the set of chosen techniques, etc. must be evaluated.

However, even if all applications to most models have been successfully carried out, I doubt that the result will be sufficiently important for publication in PRL.

W. E. Bron
Divisional Associate Editor
Physical Review Letters

APPEAL TO Editor-in-Chief of the APS

From: sfradwan@cyf-kr.edu.pl
To: prl@aps.org
Subject: resub LF7313 Radwanski
Date sent: Tue, 23 Nov 1999 22:29:23 +0100

From R. J. Radwanski
To: Editor of PRL

Concerns: LF7313: "Orbital moment in NiO"
by R. J. Radwanski, Z. Ropka nad R. Michalski

Dear Editor,
Dear DAE (W. E. Bron),

In answer to your negative decision of 22.11.99.
I put the appeal to the Editor-in-Chief of the APS.

I find the treatment of my paper dishonest. The report of DAE is very poetical without scientific arguments. It seems that DAE does not know the problem of NiO at all. Despite that it is simple oxide, its properties are badly understood. Mentioned by DAE modern techniques have failed to account for the most general fact that NiO is insulator - the modern techniques provide NiO to be metal. Up to the measurements of Fernandez et al. (PRB 57 (1998) 7870) the Ni moment has been know from sixties as 1.6-1.9 μ_B, whereas the new value amounts to 2.2 μ_B.
The problem of the orbital moment is difficult - INSPEC provide only 3 references at all (items: NiO + orbital moment). There are two papers of Fernandez from 1998, just mentioned above, and the third one of Norman from 1991. Both are cited by me. Results of Norman (Ref.2): spin 1.43 and orbital 0.12 μ_B are much lower than the experimentally found of 1.90 μ_B and 0.32 μ_B.

In such the situation the negative report of DAE is really scientifically dishonest.
Moreover, I have ask the Editor (20.10.1999) for the answer of PRL

referees for the simple question:
"What paper do you, i.e. the referee, consider as the most representative for theoretical understanding of NiO? So, provide the reference."
Despite remembering 9.11.1999 I did not get the answer for this simple question.

This is really dishonest treatment -I would like to know what is wrong in my paper. Not consideration of "modern techniques" is stupid argument -especially in the situation when these "modern techniques" fail to provide the orbital moment. Any result that can provide the value of the orbital moment cannot be so simply ruled out.

I ask you for publication of this paper. It enables the normal open scientific discussion.

Sincerely Yours,
Ryszard Radwanski

>From: R. J. Radwanski
>To: PRL-email <prl@aps.org>
>Subject: Report LF7313 Radwanski
>Date sent: Wed, 20 Oct 1999 13:45:18 +0200

>To: Editor of Phys. Rev. Lett
>Concerns: LF7313: Orbital moment in NiO by R.J.Radwanski, Z.
>Ropka nad R.Michalski

>Dear Editor,
>Thank you for your email of 19 October 1999. As it is impossible to
>discuss with the undefined critics please ask the referees A, B and C
>to give the short answer for one question:
>What paper do you, i.e. the referee, consider as the most
>representative for theoretical understanding of NiO. So, provide the
>reference.

>Sincerely Yours,
>R. J. Radwanski

Proposal for the scientific bet to DAE on "Orbital moment in NiO"

From: sfradwan@cyf-kr.edu.pl
To: prl@aps.org
Subject: report LF7313 Radwanski (bet dr Bron)
Date sent: Tue, 14 Dec 1999 09:49:34 +0100

From R. J. Radwanski
To: DAE, Dr W. E. Bron
Editor of PRL

Concerns: LF7313: "Orbital moment in NiO"
by R. J. Radwanski, Z. Ropka nad R. Michalski

Dear W. E. Bron, DAE of Phys. Rev. Lett.,

As you know I put 23.11.99 the appeal to the Editor-in-Chief of the APS. for your negative decision of 22.11.99 about my paper: LF7313: "Orbital moment in NiO" by R. J. Radwanski, Z. Ropka nad R. Michalski.

I hope that you take the full responsibility for your decision. In order to make your responsibility real I proposed the scientific bet to you. Otherwise your responsibility is, in fact, only illusoric. I proposed 300 USD from my side for 1000000 USD from your side.

I take here into account my very high appreciation of you and referees of PRL. assuming that you have, say, 10 experts each of them 1000 times better than me. It makes our impact factor difference by 10000. Later I have increased my input three times.

I am convinced that it is the very honest bet. It equals our chances and makes our long scientific discussion more practical and with the real responsibility for both sides. Such relatively large amounts from your side came out as I do not like to be accused for the depreciation of the Phys. Rev. Lett. experts. Note also that I am not from a wealth Western country. As you are convinced about your negative evaluation of my paper about NiO it should be no problem for you to make such the bet. You can easily win 300 USD dollars. Do not hesitate. As I am convinced about my work I have increase my input three times i.e. up to 300. If you think that experts of Phys. Rev. Lett. are less valued please reduce your input (you can also increase in case of the bigger value of your established experts or/and their larger number) and establish the bet.

The normal honesty requires from you to undertake this bet - you can increase/decrease your side according to your evaluation of your knowledge and of your referees. Please, inform me about it in two weeks time (29.12.1999). No answering in that time I understand as your agreement. Then we will wait and see what is going in Science and about NiO in 2000. It does not to be me, paper of who will be find to be suitable for PRL, but I say that it will the old crystal-field and the spin-orbit coupling. We will wait with the responsibility from both sides.

I think that it very nice ending of discussion with you: I find the treatment of my paper dishonest. Your DAE report is very poetical without scientific arguments. It seems that DAE does not know the problem of NiO at all. Despite that it is simple oxide, its properties are badly understood.

Mentioned by DAE modern techniques have failed to account for the most general fact that NiO is insulator - the modern techniques provide NiO to be metal. Up to the measurements of Fernandez et al. (PRB 57 (1998) 7870) the Ni moment has been know from sixties as 1.6-1.9 μ_B, whereas the new value amounts to 2.2 μ_B.

The problem of the orbital moment is difficult - INSPEC provide only 3 references at all (items: NiO + orbital moment). There are two papers of Fernandez from 1998, just mentioned above, and the third one of Norman from 1991. Both are cited by me. Results of Norman (Ref.2): spin 1.43 and orbital 0.12 are much lower than the experimentally found of 1.90 and 0.32 μ_B.

In such the situation the negative report of DAE is really scientifically dishonest. As you know I have ask the Editor the three times already (20.10.99) for the answer of PRL referees for the simple question:
"What paper do you, i.e. the referee consider as the most representative for theoretical understanding of NiO? So, provide the reference."
Despite the remembering 9.11.1999 and 23.11.99 I did not get the answer for this simple question.

This is really dishonest treatment - I would like to know what is wrong in my paper. Not consideration of "modern techniques" is stupid argument -especially in the situation when these "modern techniques" fail to provide the orbital moment. The approach that can provide the value of the orbital moment cannot be so simply ruled out.

Sincerely Yours,
Ryszard Radwanski