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# Is Not the Universality of Implementation of IAEA Rules as Difficult to Maintain as It Was to Obtain?

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## INTRODUCTION

It is quite a common place to say that the IAEA recommendations on the safe transport of radioactive materials remarkably succeeded in their task to uniformize the applicable rules, and by that way to make it possible to carry radioactive material nationally and internationally.

That is true, at the present time as well from the geographical and political standpoint, as from the modal standpoint, that means, whichever is the country, the air or maritime space, or the transport mode.

The transcription of IAEA rules in the regulations or recommendations of modal international organizations, and in the national rules allowed to get to this very favorable situation.

It is however another common place to say that the problems set up by this carriage evolve with the technical progress and nuclear knowledge as well as with the evolution and development of their implementation, and, therefore, the applicable rules must be adapted to the evolution and evolve themselves.

It seemed therefore interesting to us to try to see under what conditions, the harmony obtained at one given date could be maintained and kept with the passing time, through the necessary adaptations in the field of the making up of the general rules, and in the practical applications.

## **I - THE GENERAL RULES IN FRONT OF THE EVOLUTION OF NUCLEAR TECHNIQUES AND INDUSTRY AND OF THE PROGRESS IN SAFETY ASSESSMENT.**

The evolution of actual situations found expression by amendments proposed and often accepted by consensus in IAEA Recommendations, and periodically issued.

However the incorporation of these amendments of which simple issuance already requests time, must be made as simultaneously as possible, in modal international or regional rules, and between the latter and national rules as well.

Every gap in these transcriptions entails difficulties, of which the resolution requests considerable efforts and causes lost time and money.

The passage, for instance, from Recommendations of 1967, to those of 1973, gave some examples, of which all the following are not, at the present time, rubbed out.

This coming together, so wishable it could be, is unfortunately not easy to assure, even already at the level of international regulations, as far as different transport modes are concerned. It is obviously still more difficult in national rules, where many other factors, dealing with the state's sovereignty, or possible consulting national or local procedures, may intervene.

The wishable alignment in texts and dates must be the result of an effort of international organization and national administrations.

But has the IAEA itself a part to play in this effort? Its part of adapting the recommendations to the actual situation in transport and the progress of technical and scientific knowledge is essential.

But, if it is crucial for IAEA, not to be passed over by situations of facts, it is not less important for the experts to be conscious of the practical involvements of the amendments they promote. And also of the difficulties entailed by the cascade of regulatory consequences of these evolutions when the flow is too rapid at the source.

These modifications must indeed have repercussions in a space which presents many dimensions: geographical, modal, political, and, we have seen it, temporal, but also of discontinuous structure, even in time, as far as the adjustments are to be made at predetermined rhythms, not always equal, and uneasily changeable.

Moreover, the IAEA deals with all transport modes; that does not mean that the rules are absolutely the same for all the modes. However, as far as the packagings are concerned, they stay the same as far as possible. Differences, from this standpoint are until now, relatively minor: for instance, differential pressure criteria in air transport.

It could be asked, in this connection, what could be the effect of a greater difference between the air criteria, for example, and those of other modes. The universality of principle can be saved by the taking in account of the same proportion of accidents (from severity viewpoint) as in a land transport for instance, somewhat erasing the difference between their absolute probabilities.

A very noticeable difference could be, nevertheless, introduced in the definition of the packagings. We will come back on this point, and we will see that it is less in the writing of the regulations than in their implementation that are encountered the main difficulties due to the differences introduced and by their unavoidable evolution in time.

## II - THE EFFECT OF DISCONTINUITIES IN IMPLEMENTATION OF RULES.

The packagings, and specially the approved packagings which are the main supports of safety, have obviously a material life, and therefore a life duration.

If the mode of operating can easily change, from one day to the other, from one country to the other, from one mode of transport to the other, it is not the same for packagings. This is, precisely, one of the main reasons of the necessity of the universality of regulations.

Some differences can be covered by reversible or irreversible modification: calibration of valves in maritime transport, adding of protecting shells for example. Some others entail a quite new design.

In the case e.g. of very important packaging designed for transport of irradiated fuels representing a large economical investment, and of which the solidity has for consequence a long duration of life it would be absurd and anyway difficult in practice to retire them from use for more or less theoretical reasons and in any case without any severe and proved reason affecting their actual safety.

In a similar way what can be said about packagings used on every mode for long years and which could be forbidden, e.g., on air mode, when nothing has changed, except that the experts moved from a less or more conscious probabilistic approach of this mode, to an approach more similar to the one used until now in land transport, that is to say essentially deterministic?

We will be in a situation, perhaps unavoidable, which is perhaps the price for progress, where, at the same time a transitional period will be economically and materially indispensable, and very difficult to admit from the safety standpoint, at least in principle.

The principle of grand father clause, very pragmatic in its implementation, solves only apparently all the problems. It makes use indeed of the multilateral approval, already utilized for type B (M) and Fissile packages. However in these two cases multilateral approval stays upon a fundamental consensus, in a frame of applicable rules, it is in fact a verification by the involved Competent Authorities of the compliance to these rules. It is not the case for grand fathers.

If an amendment of the Regulations, significant for a packaging, is issued during the lifetime of the latter, its utilization will be suspended to multilateral agreements, very near from special arrangements. We are, in this case, very near from a pure contractual situation, outside any compulsory regulation, at least on amended points.

This situation could be unpleasant especially in two cases:

the case of very complex, solid and onerous packagings, the case of packagings diffused in many exemplars, all over the world.

In practice, if not in principle, this comes back to actually apply the new requirements only to the new constructions, although without legal basis, except if the law allowed it.

It is, besides, what some people propose to legalize, as it is the case in some fields other than nuclear transport, and what was implicitly made when no expiration date was given to design approval certificates.

It is in that context, that the Recommendations of 1985 require to accompany the use of the grand father clause by a registration of the material exemplars subject to this clause, in addition to the new ones.

This registration and control, should be, to our opinion, organized by the Competent Authority of the country of the owner of the packaging. This seems to be the only possible solution for the packagings overpassed by the evolution of the Regulations, as for the others.

The regulations do not specify, indeed, the Competent Authority who is in charge of this registration: The C.A. of the Country of design, manufacture, use, ownership...?

Will this situation be completely satisfactory?

It seems to be the case when the amendments to the regulations are either shallow, or leading to possible modifications, or additions, to the packagings.

As we already saw, it is very much less the case when the amendments are asking for fundamentally new designs.

In that case, the use of old ones, even when it is traditional, will be submitted and limited to very topical special arrangements.

## CONCLUSION

We have seen that one of the prices to pay for the conjunction of universality of packagings and necessity of evolution is that at one given moment, and more and more as the time passes, many exiting materials are no longer totally in line with the rules in force.

### **Is that situation actually jeopardizing the safety?**

As a matter of fact, it was rarely proved, until now, that a packaging complying with, e.g., 1967 IAEA rules was not safe, when, of course, it has been maintained in good order. Some actual cases, which, as we saw in other papers, are very instructive, can often be interpreted less as failures of the regulations than as failure of their implementation.

### **What about the future?**

#### **I - For the existing material packagings.**

The "grand-fathers", i.e. the packagings in line with the previous rules and not, on at least one point, with the new ones, may continue their active life, under the condition of multilateral approval of their design, and, that is our proposal, under the control of their individual state and maintenance by the Competent Authority of their owner. This last control will be essentially unilateral, but with some evidence of it given to everybody, as for example a marking on the packaging, and even some visible registration in the country of the owner.

This solution will be satisfactory as far as all the involved Competent Authorities stay in agreement on the design approval.

This "continued" agreement is, to my own opinion, submitted to certain conditions on the evolution of the rules themselves.

#### **II - For the evolution of the requirements.**

On the one hand, in order to avoid an enlarged gap between regulations and facts, it is certainly crucial not to be overpassed by evolutions coming from other sources, but it is certainly as crucial to make sure that these "foreign" sources of amendments are really pertinent and grounded more on actual safety than on other factors.

On the other hand it is necessary to evolve at a pace that, first, positive regulations, and, second, reality, can follow. And, to avoid too theoretical amendments, not inspired by the actual discovery of a lack in safety, as it was strongly underlined by the International Maritime Organization, questioning, to tell the truth, the U.N. Recommendations.

Moreover it seems crucial also to keep the principle of requirement of results, avoiding constraining determination of means, much more sensitive to location, to time - or fashion - and to specific interests as well.

And as far as possible, fundamentally new requirements are to be inspired more by new actual situations as accidents showing unviewed failures, or birth of a new traffic, than by new theories or extrapolations.

That is in order to avoid as far as possible successive contradictory solutions to the same problem, which are always unpleasant, and sometimes very difficult to cope with in our case.

That seems to us the condition for keeping the essential time dimension to the wonderful space of agreement gained by transport of radioactive material.

# *Index*

---

**A**

Abbott, D.G.	1678
Abe, H.	308, 1475, 1563, 1571, 1618, 1734
Acheson, E.	849
Acton, R.U.	1553
Ahearne, J.F.	8
Akamatsu, H.	1475, 1563, 1571, 1618
Akashi, K.	1686
Akiyama, T.	1726
Alesso, H.P.	1532
Allen, G.C.	1229
Althaus, B.L.	1641
Ansalmo, A.A.	398
Anspach, W.	349, 1017, 1710
Aoki, S.	1866
Appleton, P.R.	830, 1262
Aratani, K.	552
Ardila-Coulson, M.V.	590
Asada, K.	131, 1308
Attaway, C.R.	544
Attaway, S.W.	55, 63, 1218, 1229, 1499, 1678
Auchapt, A.	1363
Aurich, D.	701

**B**

Bach, R.	1123
Baekelandt, L.	123, 948
Bakema, U.	1103
Ball, L.W.	1427, 1803
Ball, M.H.E.	365
Barlow, C.R.	1749, 1755, 1763
Barrett, P.R.	179
Bateman, V.	1499
Benito, G.	1183, 1460
Bennett, D.	819, 830
Bennett, P.C.	247, 536
Bergmann, W.	516, 1017
Bernard, H.	411, 1091
Biaggio, A.L.	1837
Bishop, R.	19
Blackbourn, M.	662
Blalock, L.	1393
Blum, P.	379
Blythe, R.A.	1300
Bochard, C.M.	1796
Botzem, W.	940, 1710
Bourdon, S.	275
Brady, M.C.	771
Brimhall, J.L.	1025

**B (continued)**

Brissier, R.	1237
Brogan, J.D.	1081, 1611
Bronowski, D.R.	1491, 1499, 1678
Brown, M.L.	1262
Brown, N.	213
Brown, N.N.	316
Brown, O.F., II	843
Bumpus, S.E.	979
Burgess, M.	275
Burgess, M.H.	365
Butler, B.D.	503
Butler, N.	1173
Butler, S.	1291

**C**

Cagnon, R.	1010
Cañibano, J.A.	261
Carne, T.G.	1499
Carnes, N.	1393
Carr, M.	1245
Carriker, A.W.	425, 634
Cashwell, C.E.	223
Cashwell, J.	1398
Cashwell, J.W.	611, 619, 1035, 1066, 1081, 1611
Chapman, C.R.	641
Chapuis, A.M.	1845
Chardin, J.	1352
Cherubini, A.	275
Cheshire, R.D.	1405
Chevalier, G.	566
Childress, P.C.	1796
Choi, J.S.	1532
Chou, C.K.	1634
Christ, R.	516, 1017
Chuang, C.	1427, 1803
Chun, R.C.	186, 1190
Clemson, P.D.	763, 786
Coburn, N.L.	913
Codee, H.D.K.	1103
Colhoun, C.J.K.	1366
Conan, M.R.	596
Cooke, B.	923
Cooper, C.A.	1173
Cooper, A.J.	809
Corny, F.	1324
Creedon, M.R.	838
Creer, J.M.	299
Curtis, H.W.	1097

**D**

Daloisio, G.S.	1858
Darrough, M.E.	899
Devillers, C.	255, 1278
Dickinson, J.R.	1641
Dierckx, L.	123
Diersch, R.	1291
Dixon, G.N., Jr.	231
Doman, D.R.	1811
Donelan, P.	153
Draulans, J.	566
Drez, P.E.	206
Driscoll, K.L.	596, 1385
Dunlap, M.G.	462
Dutton, T.P.	107
Dybeck, P.	1115, 1334, 1377

**E**

Eastman, C.R.	819
Eckerman, K.F.	634
Edling, D.A.	454
Edwards, R.T.	365
Egan, M.J.	830
Eggers, A.G.	44
Einziger, R.E.	163
Erickson, C.M.	1398
Esashi, Y.	308, 1734

**F**

Farinoso, F.	475
Fedorovitch, E.D.	1647
Fignon, M.	411
Finley, N.C.	1035, 1043
Fischer, L.E.	1515, 1634
Fish, R.L.	503
Flaherty, J.E.	886
Flanagan, D.P.	1218
Frazier, J.L.	1742, 1755
Freedman, J.M.	1507
Frenz, H.	736
Fry, C.J.	1587
Frykman, S.	1334
Fukuda, S.	1626, 1866
Futamura, Y.	1686

**G**

Gandellini, A.	558
Gaspar, C.	1460
Gavin, M.E.	962
Geiser, H.	1161

**G (continued)**

Gelder, R.	418, 438
Geoffrey, J.	275
Gerard, A.T.	1363
Gerhard, M.A.	979
Giambuzzi, S.	275
Gilbert, E.R.	1025
Giles, G.E.	283
Glass, R.E.	275, 953, 1153
Goedicke, F.E.	1788
Gomi, Y.	1734
Gonzales, H.M.L.	1854
Gouin, P.	1343
Gowing, R.	343, 1143
Gregory, D.L.	1499
Gregory, P.C.	99
Grella, A.W.	389
Grenier, M.	1845, 1873
Grenier, R.M.	1781
Griesmeyer, J.M.	536
Grondin, L.	1058
Grubb, R.G.	238
Guerra, G.	495
Guetat, Ph.	1845
Guidotti, M.	558
Günther, B.	736, 940
Gustafsson, B.	1115, 1334, 1377
Gwinn, K.W.	953

**H**

Hahn, R.E.	398, 475, 1858
Hamard, J.	411, 1603
Harada, Y.	743
Harmon, L.H.	1, 1385
Hasegawa, M.	1726
Hattori, S.	801
Heilbron, P.F.L.	266
Henry, K.H.	878
Henson, H.M.	1755
Higashino, A.	1316
Higson, J.	195, 670
Hoang, L. Phan	1343
Hode, S.	1202
Holm, J.A.	869, 913
Holt, G.	115
Holt, P.J.	71
Holten, J.R.	1641
Honami, M.	1316
Hovingh, J.	979
Hubert, P.	1278
Hueggenberg, R.	1161

**H (continued)**

Huerta, M.	1678
Humphreys, D.	335
Hunter, I.J.	343
Hurley, J.D.	1385
Hutchinson, D.L.	819

**I**

Iida, T.	801, 1475, 1563, 1571, 1618, 1626, 1734
Ikushima, T.	1202
Ilyin, Yu.V.	1413
Inaba, Y.	1686
Irino, M.	1308
Ishizuka, M.	1316
Itabashi, I.	1686
Ito, C.	712, 1483
Itoh, C.	1734

**J**

Jahn, J.D.	470
Jensen, M.F.	1781
Jones, C.R.	1819
Jones, D.K.	662
Jones, J.W.	720
Jones, L.	343
Jones, R.H.	238, 1025, 1819
Jordan, H.	163, 171
Josefson, J.	1377

**K**

Kakunai, H.	1571
Kanae, Y.	1694
Kanazawa, H.	1308
Karigome, S.	145, 1618
Kee, A.T.	1811
Keltner, N.R.	323, 1595
Kempe, T.F.	1058
Kent, L.A.	1595
Kerr, D.C.	913
Kincy, M.A.	335, 1507
Kirchner, B.	1010
Kishi, T.	712
Kitamura, T.	1541
Klimas, M.J.	906
Kobayashi, S.	308
Kobayasi, S.	1734
Kondratyev, A.N.	680, 1413
Koploy, M.	1210, 1435, 1443
Kosarev, Yu.A.	1413

**K (continued)**

Kotani, Y.	1541
Kouno, K.	1483
Kouts, C.A.	865
Kovac, F.M.	654
Kowalewsky, H.	195, 357
Kozlov, Yu.V.	1413
Kozlovskaya, L.A.	680
Krieg, R.D.	79
Kubo, M.	1541
Kurakami, J.	529
Kusakawa, T.	712
Kuznick, S.K.	838

**L**

Lacheteau, H.	1352
Lafontaine, I.	123, 566, 948
Lake, W.H.	779, 1773
Lambert, R.W.	1819
Lattin, W.C.	648, 878
Laug, R.	1467, 1710
Lazarevitch, S.	1352, 1363
Lebedenko, S.G.	680
Lecoq, P.	630
Lee, G.	1405
Lehnert, R.A.	1001
Lenail, B.	1097
Lengyel, A.L.	373
Lester, K.	247
Libon, H.	123, 508, 948
Lilly, M.J.	899
Linke, U.	1291
Little, C.C.	1788
Liu, T.L.	1427, 1803
Livesey, E.	275, 291
Livingston-Behan, E.A.	869
Lo, T.Y.	1190, 1451
Lopatta, P.	855
Luna, R.E.	1254, 1270

**M**

Madsen, M.M.	1491, 1671
Maki, Y.	801
Malesys, P.	932
Malinauskas, A.P.	163, 179
Margotta, K.	495
Marlow, B.	153
Marotta, C.R.	793
Maruoka, K.	308
Mason, M.	247



**M (continued)**

Matsumoto, M.	1579
Matsushima, H.	552
Mauny, G.	411
McClure, J.D.	223, 1035, 1043, 1254, 1270
McConaghy, W.J.	1001
McConnell, P.	720
McGuinn, E.J.	1796
McKinnon, M.A.	299
Medley, L.G.	544
Meguro, T.	521
Meinert, N.M.	25
Mello, R.M.	34
Mennerdahl, D.	275
Meyer, P.	379
Meyer, R.	1781
Mezrahi, A.	266
Michener, T.E.	299
Mignot, E.	1343
Milde, G.	1291
Miles, J.	153
Miles, J.C.	107
Milloy, C.J.	107
Mishima, T.	529
Mitchell, J.P.	365
Miyao, S.	1626
Miyazawa, M.	1686
Mochiji, T.	1541
Mok, G.C.	1190
Morgan, H.S.	79
Morin, J.	411
Moroz, G.Z.	680
Moulton, R.J.	670
Moya, J.L.	316, 323, 1229, 1553
Mummery, G.B.	1109
Murthy, D.V.S.	206

**N**

Nagahama, H.	1563, 1571
Nagel, P.	275
Nair, B.R.	34, 1788
Nakajima, K.	1626
Nakayama, J.	145
Namito, Y.	1579
Nawata, Y.	1316
Neider, T.	495
Neilsen, M.K.	79
Neilson, A.J.	1173
Nemoto, T.	1686
Neuhauser, K.S.	1066, 1074, 1611

**N (continued)**

Nickell, R.E.	720, 753, 970
Niiho, T.	1686
Nishikawa, A.	989
Noguchi, K.	1626
Nolan, D.J.	44
Nomura, M.	145
Nomura, T.	1316
Noura, T.	145, 1618
Novo, R.G.	1837, 1854

**O**

O'Sullivan, R.A.	1829
Ohashi, M.	1308, 1316, 1579
Ohnuma, H.	308
Ohsono, K.	1308
Ohtake, T.	521, 529, 1541
Ohtsubo, H.	712
Ohuchi, Y.	529
Okumura, Y.	1579
Onodera, A.	989
Orsini, A.	1136
Osborne, D.	1443
Ostmeyer, R.O.	1035
Ottinger, C.A.	1025
Oyamada, R.	1686
Ozaki, C.	206
Ozaki, S.	1475, 1483, 1563, 1571, 1618, 1626, 1734

**P**

Paganelli, M.	1136
Pagès, P.	1278
Pandimani, S.	1050
Pannett, R.F.	1109
Paquin, P.	247
Parks, C.V.	771, 1545
Pasupathi, V.	171
Pavlov, M.S.	1413
Pearson, J.	1532
Pecover, C.J.	483
Pettersson, B.G.	1829
Pettersson, S.	1115
Pflugrad, K.	131
Pickering, L.	1443
Pierce, J.D.	1229
Pochini, G.	558
Pollmann, E.	349, 1467
Pope, R.B.	1829
Porter, S.A.	99

**P (continued)**

Poulter, D.R.	830
Pretesacque, P.	405, 1324
Price, M.S.T.	107
Pryor, W.A.	1721
Pujet, D.	932
Puntarulo, L.J.	261

**Q**

Quinn, G.J.	206
-------------	-----

**R**

Rainisch, R.	373
Raisonnier, D.	1091
Rashid, Y.R.	179, 970
Rasmussen, R.W.	1001
Ratledge, J.E.	238
Rawl, R.R.	238
Reardon, P.C.	1043, 1074
Rector, D.R.	299
Renaud, Ph.	1845
Renier, J.P.	771
Rennich, M.J.	544
Reno, H.W.	648
Revoon, A.	680
Rey, J.C.	1183, 1460
Ringot, C.	1278
Ringot, G.	566
Rittscher, D.	1161
Robinson, P.J.	1858
Rodríguez, C.E.	261
Roland, V.	379
Ross, B.C.	483
Rouquette, Y.	137, 405

**S**

Saegusa, T.	308, 712
Salzbrenner, R.J.	728, 753
Sanders, A.H.	720
Sanders, T.L.	163, 171, 179, 536, 771, 779, 1025
Sappok, M.	131
Sasaki, T.	1694, 1702
Sasao, N.	1726
Sato, H.	1316
Sato, M.	1686
Satoh, K.	1475, 1563, 1571, 1618, 1626, 1734
Sauvé, R.G.	962
Savornin, B.	137, 1097

**S (continued)**

Schilperoord, A.A.	447
Schmitt, R.C.	648
Schneider, K.A.	470
Schüler, R.	855
Schwartz, M.W.	186, 1523
Sert, G.	137
Shamkhani, H.	247
Shappert, L.B.	25, 906
Shatoff, H.	1210
Shaw, K.B.	418, 438
Shigeto, T.	1541
Shih, P.	44
Shiomi, S.	712
Shirai, K.	1483
Shirakura, T.	1694
Shuler, J.M.	430
Siegert, W.	1467
Sievwright, R.W.T.	153
Sikkens, P.J.	447
Smith, D.	604
Smith, L.J.	626
Smith, M.J.S.	153, 819
Smith, S.A.	869
Soanes, T.P.T.	71
Sobolik, K.B.	323
Sorenson, K.B.	728, 753
Stancell, D.	1393
Standke, S.	1291
Stenberg, D.R.	1491
Strunk, W.D.	1763
Suga, M.	1702
Sumar, R.N.	995
Suzuki, H.	1726
Swindlehurst, W.E.	291
Szanto, M.	87

**T**

Takahashi, S.	529
Takaku, H.	712
Takeda, T.	145
Tanabe, M.	1866
Tanaka, T.	1726
Tanguy, L.	490, 508
Tanino, R.	1866
Taniuchi, H.	801, 1563
Tashiro, S.	145
Taylor, C.	1435
Taylor, L.M.	1218
Teer, B.	247
Temus, C.J.	206

**T (continued)**

Thomas, A.B.	1245
Thompson, T.C.	1803
Thorne, P.R.	763
Tomachevsky, E.	566
Tomachewsky, E.M.	1278
Trummer, D.J.	979
Tulk, J.D.	962, 995
Turnquist, M.A.	582

**U**

Ueki, K.	801, 1579
Umeda, M.	1316
Uncapher, W.L.	1491, 1641, 1671, 1678
Urabe N.	743
Uruwashi, S.	552

**V**

Vallepin, C.	195
Vandorpe, M.	948, 1091
Vaughan, R.A.	115, 670
Verdier, A.	1237
Viebrock, J.M.	231, 989
Vietri, J.R.L.	1837, 1854
Vivien, J.	508

**W**

Wade, T.E., II	4
Wangler, M.	1035, 1043
Warrant, M.M.	213
Watabe, N.	1475, 1618, 626, 1734
Watmough, M.H.	786, 809
Weise, H.-P.	357

**W (continued)**

Weiss, M.	349, 1291
Welch, M.J.	611
Welles, B.W.	611
Wells, A.H.	231, 989, 1427, 1803
Wendel, M.W.	283
Wenz, R.	357
Werk, J.A.	582
Wieser, K.E.	701
Willaford, D.	1393
Williams, L.P.	1405
Williams, R.F.	720
Wilson, C.K.	418, 438
Wilson, W.	34
Witte, M.C.	186, 979, 1190, 1523
Witte, M.W.	574
Wolk, Th.	357
Wood, I.A.	662, 1300
Worthington, D.	291
Wüstenberg, H.	701

**X**

Xavier, A.M.	266
--------------	-----

**Y**

Yamada, Y.	145
Yamakawa, H.	308, 1734
Yamamoto, Y.	529
Yato, Y.	1726
Yershov, V.N.	680, 1413
Yoshimura, H.R.	55, 63, 79, 1218, 1499, 1678
Yossifon, S.	87

**Z**

Ziehlke, K.T.	1749, 1755
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